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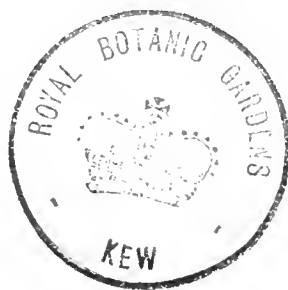
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## TO OUR READERS.

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SIXTY-FIVE volumes of the *Cottage Gardener* and the *Journal of Horticulture* are before us as we write, and they form, we think, an encyclopædia of practical gardening which all, from the humblest tiller of the soil to the most accomplished cultivator, may peruse with advantage. They represent the thought and labour of a band of skilled and earnest co-workers, some of whom have long since rested from their labours, and have left behind them cherished memories; others, old and trusted, still remain worthy exponents and sound teachers of the art of gardening, while recruits of high promise are ever joining our ranks.

That great concentration of effort cannot but have had a beneficial influence in improving the gardens and gardening of our land. This has been the object which has been steadily kept in view throughout the work, and it remains the object of our continued exertions.

The founder of this Journal wrote on its first page, "No one values the services of science more highly than we do. We know that it points out and illumines the path of the gardener; it aids and sustains him in his progress along that path, but the path itself is Practice. Upon this we shall place our foundation."

That foundation has proved sound, and the results have been such that might tempt us to boast; but as boasting is born of vanity we refrain.

The address to the readers of the *Cottage Gardener* at the close of the first year of its publication are equally applicable now and appropriate—"Like the pilgrim of old, we are grateful for the past and hopeful of the future—grateful because we know we have achieved a measure of good by improving the gardening, and by bringing pleasure and comfort around many British homes; hopeful because our sphere of usefulness widens as we go, and because the materials and the aid for effecting our purposes increase around us as we advance."

He who penned those lines upwards of three decades ago happily remains with us enjoying his well-earned repose; and many readers will be glad to see his portrait in the first number of the sixty-sixth half-yearly volume of the work that he commenced, and for which he did so much towards bringing to its present established state of prosperity.

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6th	TH	Royal Society at 4.30 P.M.
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9th	SUN	1ST SUNDAY AFTER EPIPHANY.
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11th	TU	Royal Horticultural Society—Fruit and Floral Committees at
12th	W	Society of Arts at 8 P.M. [11 A.M.]

### THE FUTURE OF GARDENING.



I CANNOT but believe that there is a great and successful future for gardening and gardeners, and that gardening will be carried on in coming years on a scale far larger than ever before. I do not allude to gardens as luxuries, but to gardens as a source of profit.

The farmer's prospect is gloomy enough. He cannot grow his crops to pay, or pay well. He is threatened with rivals in the meat market. Many farmers have collapsed, and I fear more will. The majority of these, though by no means all, have been idle, or extravagant, or vicious, or wanting in energy. I have known some even, unfortunately, who have eaten their dinner this Christmas in the workhouse. In every great alteration of course many go to the wall. Thus the introduction of railways ruined many coachmen, guards, and hangers-on at stables; but others adapted themselves to their new circumstances—and happily there is much adaptability in energetic men—and such were not ruined but threw themselves and their powers in other and more profitable directions. It will be the same in this farming matter.

The point I wish to impress upon our readers this new year is, that gardening should be extended into the domains of agriculture. No longer should it be confined within the traditional four square walls of a garden properly so called, but should embrace a large tract of country, particularly that lying around and near towns.

Sir Gabriel Goldney, a particularly practical and far-looking member of Parliament, when recently addressing a large agricultural gathering, amid other remarks said, "I see from the agricultural returns that no less than a quarter of a million acres of land had during the past fourteen months been turned into orchards and market gardens, and with the result of materially augmenting the profits, considering the small time the land has been devoted to that purpose." But I am sure this plan and change can be carried further. Why should a single Apple be imported from America? I would say, Let land under the plough be planted with Apple trees. Of course the plough must not go quite up to the trees and so injure their roots. By planting the trees on such land they would be far less likely to be injured by the knives of idle mischievous boys, for a ploughed field is no pleasant place to stroll upon, as is a meadow; also the sun and air would get better to the roots, where was no entangling grass; and remember grass is only weeds. Then further, when the trees began to fruit, the crops on the land would protect them from the pilfering of

the afore-mentioned mischievous boys, who will, boy-like, eat fruit in its green state. Then, when the corn is cut, the Apples too will be ready to be gathered. The Apple crop is a very fairly certain one if proper arrangements are made, such as planting in a right aspect and planting proper varieties of trees. Let our great fruit-growers state what trees are the best—i.e., what they have found to be the best. Again, in England only and a few savage countries are lumps of meat consumed, and very expensive lumps they are. Look at the economy of French cookery; and even the very Chinese never think of providing for themselves or guests thick lumps of meat as we do. Vegetables most certainly ought to bear a larger proportion in our meals, but town populations simply cannot get them; but if large districts around every town were devoted to the production of vegetables the middle and lower classes would soon see the benefit and economy of becoming purchasers.

All vegetables except Carrots are wholesome, and if children are early trained to eat them they prefer them to meat. Two things no child naturally likes—the one is beer, the other meat. Nature teaches it that water and milk suit it far better, and the child's delicate palate loaths the medicine-like taste of beer, and pudding and vegetables and fruits suit its stomach better than meat. There is an old story of a Frenchman coming to an inn where four Englishmen had the only joint to be obtained turning on the spit for them—viz., a leg of mutton, which they stoutly refused to allow the Frenchman to share. "But," said the Frenchman, "would Messieurs allow me to put a knife here and there into the meat, and permit me also to have some pieces of bread and vegetables placed beneath?" The permission was given, and the knowing Frenchman had a tasty pleasant dinner while the Englishmen had a dry piece of meat.

I would instance a vegetable which is not nearly eaten cooked and from a dish as much as it might be—viz., the Onion; and those that are, are Spanish and not English Onions. An Englishman eats little Onions, sometimes far earlier in the day than is agreeable to those who talk to him; then he has them sliced around his beefsteak—another lump of meat—but how few have a vegetable dish full of large Onions of English growth stewed for supper! And yet no supper is cheaper or more wholesome. A poor tradesman's family might sup for a few pence on them and bread and salt, yet where are the Onions in any great number to be bought cheaply? Yet Onions may be grown in fields with profit. In another part of Sir Gabriel Goldney's address he thus speaks of this as a paying crop:—"A friend of mine was induced to follow the advice I gave him in regard to Onions, and when I was out shooting recently he drew my attention to two acres of Onions he had planted. My friend told me the difficulty he had was to keep his crop clean, and that was essential in their cultivation; but it had been properly carried out, and the result was that he had a magnificent crop. He had calculated to a nicety what expense he had incurred, and had found that with seed, rent of land, and so on, the cost had been as nearly as possible £20 an acre. He had had an offer for the crop from a man in the immediate neighbourhood of £37 an acre, but he thought he was entitled to have £40." "Supposing," adds Sir Gabriel, "this could be carried out to a larger extent, a profit of £17 an acre would be a very satisfactory result." Here, then, is one means to a desirable end. I make no apology for writing thus agriculturally in a "Journal" which,



though it be one "of Horticulture," has a division entitled "Home Farm." It appears to me that a little energy added to a power of adapting himself to altered circumstances may yet save the farmer; but it is no use going on just as his father did before him, it is a case of change front to face difficulties successfully. Folding the hands in difficulties is bad—it is idle. Wringing the hands is womanish, weak, and useless; but change of plans on consideration and calm judging, and then going on energetically in the new and probably prosperous path, is the part of a man.

In regard to gardening properly so called I must in these days read a lesson to gardeners on the absolute duty of economy, and to put masters on their guard too. Says a popular writer, "We have heard divines say that of all recreations gardening is the most innocent. They are probably right, speaking in a general way, but there are instances in which this innocent recreation would appear to be the veritable 'mischievous still' spoken of by the poet as readily procurable for idle hands. Let a man once taste the secrets of high gardening, unless his moral courage and self-denial are of an equally high order he is pretty certain to run into extravagance over his hobby. He is always longing for more glass, or constantly increasing his horticultural staff and imagining it will all pay in the end; but it does not, and the result is his garden is the heaviest item of his annual expenditure. Extravagance in a garden is no more virtuous than extravagance in a stable." These are words to be well weighed. But if masters and men determine that good gardening and economy shall go hand in hand then all will be well. No blaming then of the gardener; no reproaches of the wife cast upon the husband for his spending too much on the garden. The very same reasoning may be applied to the expenses of the poultry yard and the Pigeon loft. Remember, while hobbies give pleasure, no hobby gives unalloyed pleasure if in its gratification there is extravagance or more money spent than a man can properly and rightly afford. Ride your hobby but do not let it ride you, and then you will be safe, cheerful, and have no twinges of conscience. These are plain words of advice, but I hope will be pardoned from one who writes them in this his seventeenth annual address.

I have entitled this paper "The Future of Gardening," and I believe that future will be nationally valuable. Progress is the order of the day. An invisible hand seems to be on the shoulder of the gardener with the words, "You must go on, and go on to the benefit of Great Britain." Wonderful has been already the progress in gardening. The population of England is rapidly increasing in towns and decreasing in villages. Each time the census is taken it is found that there is an increase of population in very few villages. Some are stationary, many have less and less inhabitants: the population is centring in towns. Then, of course, these centres need more and more food, and in a larger area around towns should vegetables and fruit be cultivated. Further from towns land suited for rabbit warrens should so be used. Poultry farms, with many runs and houses distinct from each other and moveable, would also pay, and the importation of eggs might at least be diminished. This centring of the population in towns must be carefully noted to the benefit of renters of land near towns, because an increase of population will and must provide a continually larger market for all perishable kinds of food; and so a continually larger and larger space of land may be profitably devoted to the cultivation of fresh fruit and vegetables, and to the providing of milk and fresh butter.

Another point. Is it a wild dream, too wild for realisation, that towns in the future will not be the crowded places they now are? Why should not the gardener enter the streets and plant trees there, bare the banks of rivers of warehouses, and have trim and pleasant and flower-edged walks by the river? A grand mistake was made in the middle of the last century in regard to Bath, "that beautiful city," says Lord Macaulay, "which charms even eyes familiar with the masterpieces of Bramante and Palladio;" and "the only place worth living in except Florence," says Walter Savage Landor. Yet how more beautiful would even Bath have been had not in the last century houses been built on the river banks, and the very course and sight of the stream lost to sight!—if instead of these

houses there had been broad shady walks, and grass-grown banks bordered the bright and rapid-flowing Avon! But surely in the towns of the future there should be, and may be, a wider area, with trees in every street, and large gardens for fruit and flowers to every house. "Then our towns would be made really living places," says one; adding that "the farmers round, instead of striving fruitlessly to contend with more favoured climes in the production of golden grain, will find a more profitable employment in providing the children of artisans with the fresh milk so essential to a healthy-going life, and the good butter and fresh eggs so unattainable now-a-days." And if so, again would England be a "merrie England."

If such a dream should be realised—(and the gardener must to a great degree be the man of the future, and gardening be carried further and further to the benefit of individuals, and render England happier and healthier)—beauty and utility would go hand in hand, taste would be raised, aye, and morals too. Meanwhile that gardening may this year prosper; that gardeners, amateur and professional, may meet with success; that this new year may be a happy year to all readers and writers of this "our Journal," is the earnest wish of—  
WILTSHIRE RECTOR.

#### AUTUMN FLOWERING OF AURICULAS.

YOUR correspondent "R. P. B.," asking why Auriculas bloom in autumn, replies to his own question when he says that "all spring-flowering Primulas have a tendency to bloom in autumn and early winter after a hot dry season."

The remark might safely be more general, in that all Primulas are spring-flowering, earlier or later, and may bloom in autumn whether the summer has been hot and dry or not.

The Auricula sends up flowers in the autumn simply because it is a Primula; and this habit is so deeply rooted in the family, and not least in this branch of it, that probably it is impossible to eradicate it, though it may be considerably lessened in several ways.

Some varieties of the Auricula are constitutionally more given to autumn blooming than others, and the fewer your correspondent has of these uneasy sorts the less of course will be his average of autumn bloom. If he raises seedlings he will again find this tendency much more marked in some than others, and may again put aside those that persistently trouble him with flowers at a time when they can only be comparatively feeble and immature.

I should not like to say that keeping Auriculas of any value wet, "with abundance of water through the summer and autumn until the cold of winter stops the growth," is good culture. Neither do I know how it would stop autumn blooming, or be a healthy way of attempting to do so with valuable plants, not always of robust constitution, especially if they are kept very wet.

From my own experience I submit that it is far safer to keep Auriculas very cool all summer, and but very moderately moist; and if this treatment succeeds with the most highly developed florist forms of the flower it is probable that commoner varieties of heartier growth would thrive under it too. Air and light, coolness and good drainage, are necessities of life to the Auricula, but through the summer I have found them always crisper, stouter, quieter, and greener without much water or exposure to sun.

If it seems cruel to discard any varieties of the Auricula (I allude to the florist sections) because of a habit of autumn blooming, it is only necessary to explain that the plants which do so are very seldom able to form a new heart strong enough to produce a full truss in proper character next spring.—F. D. HORNER, *Kirkby Malzeard, Ripon.*

#### GALVANISED WIRE AND FRUIT TREES.

(Continued from page 589.)

RELATIVE to the absorption of muriatic acid by wire that has been immersed in it preparatory to being coated with zinc, as referred to on page 588 of the last volume, an eminent horticulturist has informed me that the acid does penetrate iron and afterwards escape from it. A few weeks ago the metal shield on the stock of his rifle—the "butt end"—became rusty, and in order to remove the rust expeditiously he applied some muriatic acid instead of scouring the metal in the ordinary manner. The part was quickly cleansed, well oiled, and the rifle "put away." A few days afterwards he was surprised to find that the acid absorbed had exuded, destroyed the effects of the oil, and the

metal was as rusty as ever; it was then cleansed, but not with acid, and oiled again, and the same results followed. The cleansing and oiling were repeated, and still the acid escaped, rendering the oil useless; and he has no doubt that if a Peach shoot or the young growing lateral of a Vine had been placed in contact with the metal the escaping acid must have injured them. This supports the statement of the individual alluded to last week, that the acid escaping from the wire must be injurious. I have a little further testimony to adduce in support of that view. On my questioning the soundness of the theory the propounder of it replied, "We will soon settle the point," and he obtained some pure zinc wire and fixed it amongst the other kinds of wire in a small house of Vines where some experiments were being conducted, and remarked, "There! there is no acid in that wire, and it will not hurt the Vine shoots, see if it does." It has not injured them, for the one solitary speck on a shoot that was secured to it was so slight as to amount to "no injury," while others in contact with some samples of galvanised wire were seriously and unmistakeably corroded. This, as the matter now stands, looks almost conclusive, but on proceeding further we shall find one or two obstacles to that mode of settling the question. The first is perhaps not a very serious one, but it must be mentioned for what it is worth. The pure zinc wire was not obtained until the so-called galvanised wire had been on trial two months, and thus the former was not submitted to an equal test in point of time; and as the Vine laterals were more sensitive of injury early in the season than later, the pure zinc wire was not so fully tested as could be wished. The next is a far more formidable impediment against the conclusiveness of the "escaping acid" proposition, and opens up another aspect of the general question that demands careful consideration. I must, however, record that the propounder of the above idea states that while the acid in the iron will escape through the coating of zinc it will not penetrate through two or three coats of good lead paint—a statement that has received abundant confirmation.

Now to the great difficulty No. 2. When discussing the electricity theory on page 568 (last volume), I stated that while that element is undoubtedly general, I should be able to show pretty conclusively that the injury resulting to trees and plants in contact with the wire under notice is markedly local. That remark has caused a little surprise, and its accuracy has been doubted. It was founded on the published statements of the many writers who took part in the discussion on the effects of galvanised wire last spring.

On careful perusal of the several communications one striking fact comes to the surface that, I think, must not be lost sight of, as it appears to be of considerable moment. It is this: Every writer save one who adduced testimony of the injurious effects of galvanised wire recorded his experience as it was gained within the smoke radius of some large city or town, or in contiguity to some works or manufactories that contributed to the impurity of the atmosphere; and, on the other hand, in every instance where a writer gave contrary testimony—namely, that the wire was not injurious, he resided far remote from large towns and in the pure air of country districts. I have had one letter from a country gardener whose trees have suffered by the cause indicated; but the substantial fact remains that it is within the smoke "measurable distance" of London, Liverpool, Leeds, Derby, Sheffield, Wakefield, &c., that the injury has been severe; while writers residing in the "truly rural" districts of north and south Yorkshire, Lincolnshire, Sussex, Wiltshire, and East Surrey have all pronounced the wire perfectly safe. I have visited the majority of the places named and am convinced of the accuracy of the statements. I have also employed the wire in the country without any signs of injury resulting, while near London it has proved most decidedly injurious. It has either had to be removed or painted in numbers of gardens near towns, including the Royal Horticultural Society's Gardens at Chiswick, but in remote rural districts recourse to such measures have very seldom been rendered necessary. I submit, therefore, that there is justification for regarding the injury as "markedly local," for it exists in the most unmistakeable manner where smoke more or less prevails, and the greater the smoke the greater the injury, while in the pure and salubrious air of the country the evil is comparatively non-existent.

Bearing in mind this element of the case, it necessarily follows, if the injury is solely due to the acid escaping from the wire, that all the wire that has been the most saturated with the acid has been employed in the vicinity of towns, while all that has only had a slight acid bath for cleansing it has been sent into the country. This result is so extremely improbable, not to say impossible, that the proposition under notice that at first looked so feasible becomes seriously weakened. That there is "something

in it" is possible, even probable, but it does not appear to afford a solution of the question by any means satisfactory.

We now arrive at Mr. Taylor's suggestion, that the impurities of a smoke-laden atmosphere may be brought down by the rain in contact with the wire, and, combining with the sensitive zinc coating, produce a result noxious to vegetation. This is not at all unlikely—is, indeed, very probable; but injury has been serious under glass where the rain has not penetrated, and in some cases where the syringe has not been used. In the structure in which different kinds of wire have been employed one Vine has been syringed occasionally, and it has sustained the greatest injury, but the four other Vines that have not been syringed have been seriously enough affected; so that water is not the sole medium of producing the noxious irritant, and we must look in another direction for a solution of the problem.

I had hoped to have concluded the subject this week; but it is so intricate, and the divergence of opinion relative to it is so great, that the examination of the question must be as close and thorough as possible, as dealing with it in a superficial manner could not possibly give satisfaction. The concluding notes, with a reference to some experiments, must therefore be deferred to a future issue.

—J. WRIGHT.

#### SERICOGRAPHIS GHIESBREGHTIANA.

THIS old inhabitant of our plant houses is now gay with its light sprays of scarlet flowers. Individually its flowers are not very showy, but the profusion in which they are produced renders them very attractive. Where autumn and early winter flowers are required it is surprising this useful old plant is not more largely grown. When in flower it thrives either in the conservatory or in the stove, but in cool quarters the flowers last best. The cultivation is simple, and dwarf plants are admirably adapted for room or table decoration; and although it is classed amongst stove plants, it thrives well under cool treatment and requires but little heat. Useful plants can be grown in a season from cuttings, and if larger plants are required the old specimens can be cut back, partially shaken out, repotted, and grown on. Propagation is easily effected by means of cuttings in spring. The tops of the shoots root freely; or the suckers that are often produced from the bottom. A number can be inserted together in 5-inch pots or singly in small pots, which is the better plan, as every cutting is sure to strike. The small pots should be filled with sandy peat, watering the soil as soon as the cuttings are inserted, which will root freely with or without a propagating frame if placed in moderate heat. The process of rooting is quicker in a frame or under a bellglass. When rooted the young plants should not be subjected to too much heat, or they soon become weakly and a prey to scale. A temperature of 55° to 58° is sufficient, as the plants grow more sturdily, and when stopped branch more freely. This plant is of upright habit, and requires to be pinched when only a few inches high. This is an important operation to form bushy plants.

When the plants require potting sandy loam and a small proportion of manure form a suitable compost, in which they will do well. They must not be left in the small pots too long, or they are very liable to be seriously checked. When the external temperature is sufficiently warm artificial heat can be dispensed with through the summer months. Syringing and early closing the frame or house in which they are grown encourages free growth during summer, and good plants can be obtained in 5 and 6-inch pots, which are large enough for all ordinary purposes. Stopping must not be done late in the season, as the growth must be thoroughly ripened to ensure the satisfactory production of flowers. After the final potting and when the pots are full of roots supplies of liquid manure must be given, and while growing liberal applications of water are needed both at the roots and upon the foliage. In early autumn when the nights become cold the temperature of 50° should be maintained, which is ample to bring the plants into flower.—WM. BARDNEY.

#### PRUNING FIG TREES.

"WOULD you kindly inform me if wood like the enclosed examples should be cut out now the trees are at rest? Will such wood bear in the coming summer? The trees were planted out last February in a span-roofed house and have borne a good crop of fruit, being large trees. Must they be pruned something like Peach trees?" Thus writes "A NOVICE" to us; and as he submits both fruitful and unfruitful wood we cannot make the subject so plain to him as by the aid of the following figures and instructions, written by a skilled cultivator of Figs, and which can scarcely fail being useful to others as well as to our correspondent.



The first crop of the fruit of a Fig tree is borne on the wood of the previous season's formation, as represented by fig. 1, the young embryo fruit being shown at *a*. That of the second and succeeding crop is produced in the axils of the leaves on the wood of the current season's formation, which will be represented hereafter. Fig. 2 represents the remnant of the last crop of fruit of the previous season as they are to be seen frequently on the plants after the fall of the leaves in autumn. These fruits are ignorantly believed by many to be those which form the first crop of the following year, and are jealously protected throughout the winter on that account. They are, however, merely late fruit of the past season which failed to arrive at maturity through want of heat or the conditions required for that end. These fruit

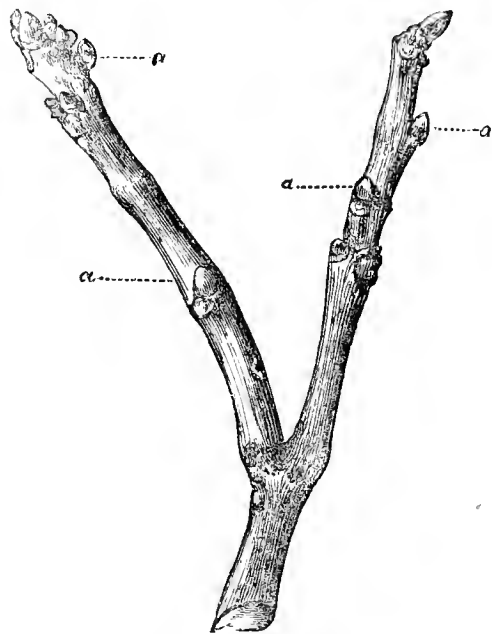


Fig. 1.

are not worth consideration. A few may, under very favourable conditions, remain on and ripen, but very seldom.

Fig. 3 is a representation of a shoot having wood buds only.

These three figures, then, represent the different characters of shoots with the position of the fruits, &c., as they are commonly

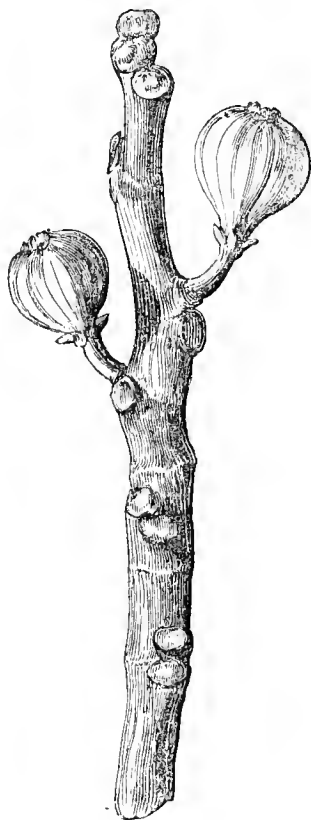


Fig. 2.



Fig. 3.

to be met with on a Fig tree at rest during the winter time. Where the wood is well ripened and in its best conditions, as will be found with pot plants and trees in houses, shoots, as in fig. 1, will predominate. A little will, however, depend upon the varieties; and when the wood is badly ripened, as where the shoots are crowded, those with wood buds only, as in fig. 3, will be produced. It is necessary to fully understand the characters

and the offices of each of these before attempting the office of pruner.

**PRUNING.**—It is an old saying, "that a pruned Fig tree never bears," which is to a certain extent true, but only with relation to the first crop, or with trees in the open air, or where sufficient heat is not available to ripen the second crop. This must be distinctly understood—that it is entirely owing to the want of heat if the second crop of fruit is not obtained, either in relation, in the first place, to immaturity of the wood which fails to produce fruit, or to the fruits being produced and failing to ripen, as shown by fig. 2. Knowing, then, whence and how the fruits are all produced we are enabled to prune with certainty for a required end. If we cut back the fruit-bearing shoots (fig. 1), we destroy the first crop of fruit, and if heat is wanting the second crop also, the shoots produced after pruning being very frequently of a watery and unfruitful character. Fig trees bearing shoots, as in figs. 2 and 3, may be pruned without any loss of crop. It is, however, clearly shown that to prune a Fig tree to any extent is a distinct loss of fruit. As, however, the operation must at times be performed to keep the trees within form and limits, it is my duty to show how that can best be done at the least sacrifice, and this must be considered under various conditions.

1, Trees on walls and as standards in the open air will, if pruned (by which is meant that particular shoot), through the want of heat or the shortness of the season, produce no fruit; so that, excepting in extreme cases, a portion only of the shoots should be cut back.

2, Trees planted out in houses with or without heat, being generally inclined to vigour of growth, will, if pruned, produce gross shoots, and consequently but seldom produce fruits that season. In this case also partial pruning only is advisable.

3, Trees in pots having their roots entirely under the control of the cultivator, and the wood being properly ripened, will, if pruned, produce an abundant second crop.

In the first example it is the first crop of fruit only which can be depended on under any circumstances. In the second example both the first and second crops may be secured if the trees are unpruned, but not otherwise. And in the third example, with trees in pots, by non-pruning we secure the first crop, and by pruning, the second and frequently a third crop. Only with pot trees, then, can pruning be effected with a certainty of a crop the same season. If in this case, then, the first crop is desired, the shoots as in fig. 1, must not be cut, excepting just a few here and there to keep the plant in trim. All shoots, however, bearing only wood buds, as in fig. 3, may be shortened back if necessary, with exactly the same result as to fruiting as if left unpruned.

Pruning should be performed as soon after the fall of the leaf as possible, in whatever situation the trees may be, whether in pots under glass or in the open air. When the trees are pruned at that season, the plant being at rest, the wounds are soon healed over and no injury is sustained; whilst, if the operation is delayed until late in spring, when the sap is again in motion, there is such a volume of sap and it is of that nature, that the shoots are apt to die after the knife: hence another of the reasons against the pruning of the Fig, which we are warned against in nearly all the writings on the subject.

Bush or half-standard trees when planted out are extremely apt to grow too luxuriantly, and in consequence become unfruitful. The shoots should be kept very thin, so as to obtain all the sun's influence possible to thoroughly ripen the wood, and in the summer the young growing shoots should be vigorously pinched, in order to check luxuriance and bring the tree into a stubby fruitful form of growth.—A. B. C.

#### DROSERAS.

MUCH has been written from time to time on Sundews, and much more could be advantageously written. All the species of Sundews are peculiar and interesting—peculiar from a structural point of view, and interesting on account of their carnivorous or insectivorous propensities. The genus *Drosera* embraces about eight or nine species known to gardens, but there are many species described that are not in cultivation. They are found growing nearly all over the world where there are bogs. Of the cultivated species *Drosera binata* (dichotoma) is by far the largest, and the species from Australia are much more elegant than our British forms. *Droseras* have no economic properties, but Dr. Lindley remarks that the viscid fluid with which the hairs are furnished is said to curdle milk and to remove warts, corns, freckles, and sunburns. It has been said to cause the rot in sheep. The virtues ascribed to it may be real or imaginary, but with respect to its mischievous effects on sheep there can be no doubt that where Sundews grow there flocks are not likely to fatten, for

the herbage with which it is associated is mostly Moss, Rushes, Cotton Grass, and other weeds. All the species of *Drosera* known to gardens are easily cultivated, and anyone having an ordinary greenhouse could succeed in growing them through the summer. My collection of Sundews is in an ordinary greenhouse in summer, associated with *Sarracnias* and *Darlingtonias*, and they succeed remarkably well. The British species are scarcely worth cultivating, excepting *D. longifolia* and *D. rotundifolia*; the latter when grown in a shallow pan is a charming plant. Some of the species are deciduous, and die down to the soil at the latter end of autumn; they should therefore not be excited to growth through the winter months, and in spring they will break away more vigorously. Spring is the best time to pot them, before they commence growing. The soil I employ consists of fibrous peat, chopped sphagnum, and silver sand, with a sprinkling of charcoal broken rather finely, which suits them very well. Some of the smaller-growing forms succeed better singly in small pots, whilst *D. binata*, *D. spathulata*, and *D. Whittakeri* look more effective in small pans. When the plants are growing they require abundance of water; in fact, the soil should never be allowed to become dry. I find that a neat top-dressing of green sphagnum on the surface of the soil sets them off to great advantage.

Perhaps a brief description of some of the species will not be out of place, I therefore give the following selection:—

*Drosera binata*.—This is the most showy and handsome of the genus. It grows from a foot to 18 inches high, and nearly as much in diameter. Small plants should be grown in pots, but if desirable to make up a specimen several roots can be placed together in a pan. The leafstalks grow rather weakly, so it is advisable to secure the largest to neat stakes; the small leaves will support themselves between the others. If any roots are broken off in potting they may be cut into lengths and potted, which in time will form young plants. The flowers are large and pure white.

*D. capensis*.—This comes next in size, growing to a height of from 5 to 6 inches. It is best grown singly in a pot, the soil being surfaced with sphagnum, and if plunged in a small pan a surface covering of Derbyshire spar is suitable. After the plant has become tall the top may be taken off and inserted as a cutting, allowing the parent plant to start into fresh growth. The roots of this species may also be propagated from, but when plants are sufficiently large they will flower freely and produce abundance of seeds, which may be sown as soon as ripe. The flowers are a light pink colour, rather large and showy, but unfortunately only last a few hours in perfection.

*D. spathulata*.—A charming little plant, but instead of growing erect it has a spreading habit, the leaves being much broader than the first-named species. I find it succeeds well in a small pan, placing five or six plants together, allowing each sufficient room to develop fully. This species also produces seed freely, which may be sown when ripe, and when the plants are large enough to handle may be pricked off into a small pan, covering them with a bellglass until they are a fair size.

*D. Whittakeri*.—This much resembles the last-named species in habit, but grows more erect. It is one of the deciduous forms, and requires a long rest. It has small tubers about the size of a round pea, and before starting into growth should be taken out of the old soil and repotted into a richer soil. *D. Whittakeri* is rather scarce in this country, and is seldom seen in collections.

*D. filiformis*.—A little gem, and should find a place in every collection. It requires a little more heat to grow it well than most of the other species, being very tender and sensitive to cold draughts. I grow my plants in small 60's, and in order to obtain a good specimen I plunge five or six together in a pan.

*D. rotundifolia*.—This is the best of the British species for growing under glass, and when covered thickly with dew it is by no means to be despised in pans. Any light peaty soil suits it, and all that is required when growing is abundance of water at the roots. *D. rotundifolia* is a very free bloomer, and if the flowers are permitted to remain on the plants they very soon produce seed pods, which to a certain extent checks the growth. I find it a capital plan to remove the flower spikes as soon as they appear; by so doing the plants keep growing till quite late in the season, the leaves attaining a greater size. I will, perhaps, give at some future time a few notes on *Drosophyllum lusitanicum*.—W. K.

**SELECTION OF VEGETABLES.**—In the selection of vegetables given by Mr. Muir at page 592 of your last volume, he names the following Peas—viz., William I., Carter's Stratagem, Carter's Telephone, Culverwell's Telegraph, Laxton's Omega, and Ne Plus Ultra. The two latter are late varieties, the first named early,

and the other three main crop Peas. In these days, when we are obliged to study economy in the garden, it would be of interest to know the proportion of each of these Peas Mr. Muir would recommend to be purchased for a garden requiring 16 qts. for seed purposes, and the cost of the same.—R. P. BROTHERSTON.

#### PLANTS FLOWERING AT CHRISTMAS IN CORNWALL.

I ENCLOSE you a list of plants that were in flower on Christmas day, 1880. The lowest temperature recorded this winter is 34°. The weather at present is extremely mild and spring-like. Cornwall is indeed the botanic garden of England, for out of doors I have noticed lately flourishing magnificent specimens of *Dracæna australis*, *Embothrium coccineum*, *Imantophyllums*, *Coprosma*, Orange plants, *Agapanthus umbellatus*, *Aralia Sieboldi* 7 feet high in flower, *Seaforthia elegans*, *Ficus repens*, *Dicksonia antarctica*, *Phormium tenax Veitchii*, *Hedychium flavum*—this flowered beautifully out of doors last summer. The following were in flower at the time mentioned:—

*Arbutus magnifica*, *Antirrhinum*, *Alyssum*, *Anthemis nobilis*, *Aucuba japonica*, *Arabis albida*, *Aralia Sieboldi*, *Armeria maritima*, *Auriculas*, *Aubrieta græca purpurea*, *Borage*, *Brompton Stock*, *Berberis Darwini*, *B. vulgaris*, *Camellias*, *Cassia corymbosa*, *Calceolarias*, *Chrysanthemums*, *Campanulas*, *Ceanothus azureus*, *Clematis Jackmanni*, *Cuphea platycentra*, *Correa cardinalis*, *Cotoneaster microphylla*, *Carnations*, *Chorozema macrophylla*, *Daisies* double and single, *Desfontainea spinosa*, *Escallonia macrantha*, *E. montevidensis*, *E. Ingrami*, *Erica carnea*, *E. ciliaris*, *E. gracilis*, *E. codonodes*, *E. mediterranea*, *Fuchsias*, *Myosotis*, *Zonal Pelargoniums*, *Geranium Robertianum*, *Gazanias*, *Glastonbury Thorn*, *Gunnera scabra*, *Garrya elliptica*, *Hydrangea*, *Helleborus niger*, *Iberis gibraltaria*, *Ixias*, *Lapageria rosea*, *Laurustinus*, *Lobelias*, *Lychnis diurna*, *Marguerites*, *Marigolds*, *Mignonette*, *Narcissuses*, *Pansies*, *Primroses*, *Polyanthuses*, *Pentstemons*, *Primula japonica*, *Pernettyas*, *Polygala Dalmaisiana*, *Papaver Rhæas*, *Petasites fragrans*, *Potentilla reptans*, *P. fragariastrum*, *Roses*, *Ranunculus repens*, *Rhododendrons*, *Silene maritima*, *S. pendula*, *Snowdrops*, *Salvia splendens*, *Spirea Thunbergii*, *Viburnum plicatum*, *Virginian Stock*, *Veronica polita*, *V. officinalis*, *V. Lindleyana*, and several garden varieties, *Vinca*, *Violets*, and *Wallflowers*.—WILLIAM ROBERTS, *Penzance*.

#### EXTRAORDINARY TITHES ON FRUIT AND MARKET GARDENS.

THE following is a copy of the Bill to be introduced by Mr. Inderwick, as referred to by him at recent meetings in Rye and Hastings on the Tithe (Extraordinary Charge).

"Draft of a Bill to amend the Tithe Commutation Acts as to Hop Grounds, Orchards, Fruit Plantations, and Market Gardens.

"Whereas by the Tithe Commutation Acts (described in the schedule to this Act) provision is made for the commutation into a permanent rent-charge of the tithes leviable in the several parishes in England and Wales; but power is given to charge from time to time an additional rent-charge by way of extraordinary charge on Hop grounds, orchards, fruit plantations, and market gardens newly cultivated as such.

"And whereas it is expedient to amend the Tithe Commutation Acts with respect to the extraordinary charges under this power.

"Be it therefore enacted, &c., as follows:—

"1. *No Extraordinary Charge on Grounds Newly Cultivated after Passing of Act.*—An additional rent-charge by way of extraordinary charge shall not be charged under the Tithe Commutation Acts on any Hop ground, orchard, fruit plantation, or market garden, newly cultivated as such, after the passing of this Act.

"2. *Saving for Pending Proceedings.*—Nothing in this Act shall effect or be deemed to apply to any proceedings taken or to be taken in relation to the charging of an additional rent-charge by way of extraordinary charge on any Hop ground, orchard, fruit plantation, or market garden, newly cultivated as such, in any case where an award in that behalf was made and confirmed, or an application in that behalf was made to the Tithe Commissioners before the commencement of the present session of Parliament.

"3. *Redemption of Existing Extraordinary Charge.*—The Tithe Commissioners shall, on the application of the owner of any land charged with an extraordinary rent-charge under the Tithe Commutation Acts, by an order under their hand and seal, direct that rent-charge be redeemed by payment by or on behalf of the owner of the land, within such time as the Commissioners by their order appoint, of a sum of money equal to nine times the amount of the rent-charge.

"4. *Application of Existing Powers to this Act.*—All the powers and provisions of the Tithe Commutation Acts respecting the redemption of rent-charge and the assessment and recovery of redemption money and expenses (except as otherwise by this Act is provided)

shall be applicable to all redemptions authorised and effected under this Act.

"5. *Short Title*.—The Act may be cited as the Tithe (Extraordinary Charge) Act, 1881."

### PLANTS CERTIFICATED IN 1880.

THAT a great demand exists for novelties in the plant world is well shown by the number the principal florists and nurserymen send out annually, for it is evident that a desire to improve the various races of florists' flowers or to add to the species of plants in cultivation would not alone induce the expenditure and labour requisite to effect either of these purposes. There must be a sufficient number among the wealthy who are willing to pay long prices for distinct and handsome novelties, and to this encouragement we owe the additions made every year to our gardens.

To many who were not in the secret it would appear strange that a commercial body of men should send experienced travellers into various parts of the world seeking plants of which comparatively few usually arrive in this country alive, and of those few it is often a matter of chance if there be any of sufficient merit to become of real value; or, on the other hand, that there would be any approximate compensation for the time occupied in obtaining distinct and attractive crosses between plants already in commerce, or in endeavouring to improve existing varieties, in which the failures must necessarily be more numerous than the successes. When it is further considered that immediately a firm sends out a new plant it loses its exclusive right in it, and those that are readily increased soon become so numerous as to reduce the price considerably, it is not surprising the prices at which they are first issued are somewhat high, though certainly not out of proportion to the risks and expenditure incurred in their production: consequently before a plant is distributed as large a stock as possible is raised, and in some cases several years are needed to obtain sufficient for placing in commerce. When, however, that has been accomplished a passport is required to the favour of the horticultural world, and this is furnished by the certificates bestowed upon new plants that are considered to merit them at the chief horticultural exhibitions.

As the gentlemen who officiate as judges on such occasions have usually had the advantage of lengthened experience, it may be fairly expected that those plants they select for these marks of distinction are entitled to them from the beauty of their foliage or flowers, and their distinctness from others already grown. In the majority of cases considerable care and judgment are exercised in making the selection from the large number usually submitted for the honour, and as a result the award of a certificate is a good indication to the public of the value of a plant. Doubts are, however, sometimes expressed as to the taste and knowledge evidenced in certificating certain plants; but as a rule it will be found that those who entertain these doubts have formed their judgment after rapid propagation has deteriorated the quality, for it must be remembered that when exhibited the plants are in the best condition, and they have frequently to be shown several times before the coveted award is gained.

What may be termed the head quarters for exhibitions of new plants are the Royal Horticultural Society's Shows and Committee meetings, and the Royal Botanic Society's Exhibitions at Regent's Park, where some hundreds are annually submitted to the attention of the Judges. During the past year at the two places named no less than 303 certificates were awarded; and as nineteen plants were similarly honoured at both, there was a total of 284 presumably good additions to our list. Of these awards 186 were obtained at Kensington, and 117 at Regent's Park. As usual the three chief metropolitan nurserymen, Messrs. J. Veitch & Sons, Mr. W. Bull, and Mr. B. S. Williams, secured by far the greatest number—namely, a collective total of 130. Messrs. Veitch had eighty-one plants certificated, Mr. Bull twenty-eight, and Mr. Williams twenty-one; fifty-five of the first-named being obtained at Kensington, and of the others five and eight each respectively. Further, Messrs. Veitch had nine of their plants honoured by both Societies, Mr. Bull two, and Mr. Williams five. It will be seen how large a proportion these numbers represent when it is stated that, exclusive of the three firms named, there were fifty-five exhibitors, among whom the remaining 173 certificates were divided, few obtaining more than five each. The numbers given above include the certificates awarded by the National Auricula, Carnation and Picotee, Societies at Kensington, as well as those given by the Societies already mentioned.

All the plants were not, however, recent introductions, although the majority were; but in some cases they have been known in this country for several years, and having been neglected or become scarce are novelties to most growers. Indeed it is a question whether it be more meritorious to introduce a new plant,

or to rescue from obscurity a comparatively old one of real cultural value. Many beautiful plants have this year been brought into notice, and others have had their claims to attention confirmed or duly recognised. Most of these have been fully described in the *Journal of Horticulture*, and all have been referred to at one time or another, but perhaps a brief review of them may be acceptable to some readers. Excluding for the present those known as florists' flowers, the first to be noted are the

**ORCHIDS.**—These have been numerous and well represented, about thirty having been certificated, all meriting the honour, and their most marked characters are indicated in the following cursory descriptions:—*Angraecum Kotschy* (Veitch).—A pretty and interesting species from Zanzibar, with deep green foliage and spikes of pure white wax-like flowers, each with twisted spur about 8 inches in length. A very desirable Orchid. *Barkeria cyclotella* (Bull).—A very charming Orchid from Mexico, with small flowers, the sepals and petals pale rosy pink and a heavy blotch of purplish crimson in the lip. *Bolbophyllum Beccarii* (Henderson).—Very peculiar, and of more botanical interest than cultural value. Leaves of great size, 2 feet long and proportionately broad, with small rather dull flowers possessing a most offensive odour. *Calanthe tricarinata* (Veitch).—A Japanese terrestrial species, with inconspicuous greenish yellow flowers in loose spikes, the lip chocolate-coloured and ridged. It is chiefly remarkable for having proved hardy at Chelsea. One of Mr. Maries' introductions. *C. Marstersonia* (Veitch).—A pretty hybrid between *C. labiata* and *C. Loddigesii*, possessing several characters of both parents. The flowers are about 4 inches in diameter, with rosy sepals and a crisped lip. *Calogyne ocellata maxima* (Williams).—An excellent form of the species, with larger flowers, more distinctly marked, and borne in larger racemes. *Cypripedium Fairieanum* (Veitch).—A somewhat rare species, bearing a resemblance to *C. barbatum*, with flowers of medium size and pretty but not imposing. *C. marmorophyllum* (Veitch).—The result of a cross between *C. Hookerae* and *C. barbatum*, and intermediate in character, possessing the handsome marbled foliage of the former and the flowers of the latter, but darker in colour. *C. Morganianum* (Veitch).—Another hybrid obtained by Mr. Seden, the parents being *C. Stonei* and *C. Veitchii*, both of which it resembles in some points. *Dendrobium splendidissimum* (Veitch).—A beautiful hybrid; still another of Mr. Seden's productions, obtained by crossing *D. macrophyllum* Huttoni and the fragrant *D. heterocarpum*. It partakes of the habit of both, but is near the last-named in the size and form of flowers. The white sepals are tipped with purple, and the lip has a large maroon spot. *Huntleya meleagris* (Veitch).—Not a new introduction, as it has been known in English gardens since 1836. It is, however, peculiar and striking, being suggestive of *Bollea coelestis*; the white marbled brownish flowers are produced from the base of the stem. A South American species. *Lalia elegans prasiata* (Williams).—An excellent form of this beautiful Orchid, the colours being much brighter. *L. Philbrickiana* (Veitch).—A hybrid between *Cattleya Acklandiae* and *Lalia elegans*. It is a handsome form, and quite intermediate between the parents.

*Masdevallia bella* (Bull).—One of the Chimæra section, with the peculiar characteristic tails to the chocolate-coloured sepals, and with a small white lip. *M. tovarensis* (Veitch).—A well-known species from Columbia that has been some years in cultivation. The specimen for which the certificate was obtained was extremely fine, bearing over sixty of its pure white flowers. *M. Wallisi* (Bull).—Like the one mentioned above also related to *M. Chimæra*, the sepals prolonged into tails and closely covered with hairs; lip white. *Microstylis calophylla* (Bull).—A terrestrial Orchid of dwarf habit with pretty foliage, the colour being a bronzy tint, margined with a lighter hue and veined. *M. metallica* (Veitch).—Also of dwarf habit, with dark leaves of a metallic appearance, and spikes of purple flowers. Both species are suited for culture in pans. *Mormodes Wendlandi* (Veitch).—A remarkable species at the last meeting of the Royal Horticultural Society. It has long spikes of pale yellow flowers that are well known to have an extremely peculiar structure as regards their adaptation for cross-fertilisation. It is a South American plant, and has not been long introduced. *Odontoglossum anceps* (Veitch).—This may be regarded in colour and appearance as an improvement on *O. maculatum*, which it slightly resembles. The sepals are reddish chocolate colour; the yellowish flowers are spotted with bright chocolate. *O. blandum* (Veitch).—A dwarf and pretty species, about 9 inches high, with neat small flowers spotted with chocolate or a brownish tint. The lip is white and spotted with purplish violet. A rare Orchid, and rather suggestive of *O. navium*. *O. hystrix serratum* (Lawrence).—A beautiful variety, easily distinguished by the larger flowers, brighter and well-defined markings, and the serrate or indented lip. *O. Roezli superbum* (Low).



—A great improvement on the type, the colours very bright, and the flowers of considerable size. *O. polyxanthum* (Cobb).—In the way of *O. triumphans*, but distinct; colours not quite so bright, and lip fringed. *O. vexillarium splendens* (Veitch).—One of the most handsome varieties of a well-known species. The flowers are very large and of a fine deep rose colour. *Oncidium concolor majus* (Veitch).—An attractive variety and very distinct; the flowers, as the name signifies, being much larger than in the ordinary form. *O. crispum grandiflorum* (Bull).—Very distinct, with larger flowers than in the type, and deeper richer-coloured markings. *Saccolabium denticulatum* (Williams).—A botanical certificate was awarded for this plant at one of the meetings at Kensington. It produces a small spike of white and yellow flowers near the base of the growth. It is interesting botanically.

It will thus be seen that Orchids were abundantly shown last year, and several excellent novelties introduced to growers. —L. C.

(To be continued.)

#### GANSEL'S BERGAMOT PEAR.

MANY old gardeners entertain the opinion that this is the best Pear in cultivation. It is unquestionably a variety of great exee-

lence, the fruit being of imposing appearance and splendid quality. Some Pears have become so popular that there is a slight danger of the merits of some good old varieties being overlooked. We would not that this were one of them, for where a good position against a wall can be afforded Gansel's Bergamot will occupy it worthily. The following notes on this Pear by the author of the "Fruit Manual" may be appropriately introduced here:—"The tree is a shy bearer during the first period of its growth, but when it becomes aged it produces more abundantly, though the fruit is of smaller size. To increase its fruitfulness, it has been recommended to impregnate the flowers with the pollen of some other variety, such as the Autumn Bergamot. It is generally believed that this variety was raised from seed of the Autumn Bergamot by Lieut.-General Gansel at his seat, Donnelland Park, near Colchester, in 1768, and this rests upon a communication to that effect from David Jebb, Esq., of Worcester, nephew of General Gansel, to Mr. Williams of Pitmaston. Mr. Lindley says, 'The Bonne Rouge of the French is evidently of the same sort, and the name must have been given it after its having been received from that country.' I am unwilling that any doubt should arise as to this esteemed favourite being a native fruit; but when I find, by the manuscript catalogue of the Brompton Park Nursery, that both the Bonne Rouge and Brocas'

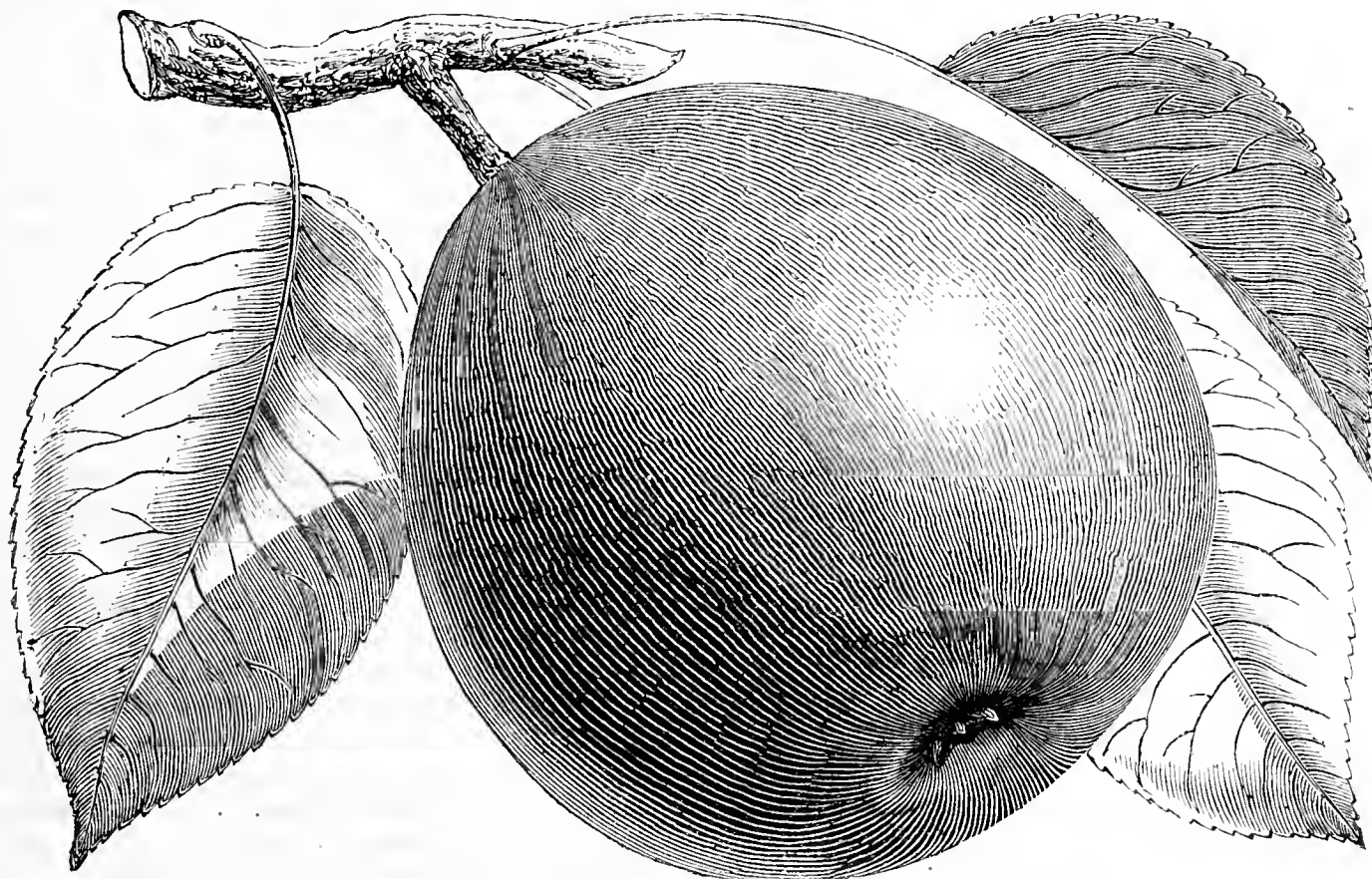


Fig. 4.—GANSEL'S BERGAMOT PEAR.

Bergamot, which are acknowledged synonyms of Gansel's Bergamot, were cultivated there in 1753, I am inclined to doubt the correctness of the above statement, and as this catalogue is the earliest I have been able to procure of that nursery, it is possible that it was grown there at a much earlier period under both of these names."

#### WINTER VEGETABLES.

JUDGING from the Scotch and English paper reports the mild weather we have experienced here has not been general, but it has been much more favourable than the two last seasons, and if due forethought has been exercised vegetables should be cheap and good for those who have to buy them, and abundant with those who have to supply them for either market or home consumption.

Broccoli are coming in true to their time, as well as fine in size and good in quality. Veitch's Self-protecting has been grand, and, indeed, is so at the present time. Should frost not interfere we shall cut many heads weekly until some time in February. It is an excellent variety, and must be grown wherever Broccoli are required in December. Osborn's variety is showing well and is another we could not well dispense with it.

Carter's Heartwell Marrow Cabbage, the principal heads of which, cut off in September and October, are producing side

sprouts from the roots and stems which were left in the ground, quite equal to the best Coleworts. A "chance sowing" of Cabbage made in July will produce better heads in January than I was able to cut in April or May last. The variety is a new one and named Dickson's (Edinburgh) Redbraes, and I am mistaken if it does not become a great favourite.

Brussels Sprouts have improved more during November and December than they did in August and September last year. This is quite an indispensable winter vegetable, and well worth all the attention possible. Some of our present plants are from seed sown where they are growing, and others were transplanted when small, and I can see no difference between them. Not many years ago selecting Brussels Sprouts was simple, as there were only two or three varieties, but now they are numerous, though it is doubtful if the old varieties have been surpassed.

The Dalkeith and the Dalmeny Savoy are not of very high quality, but they can always be relied on in severe weather, and although they may not be in great demand in the present mild weather, this must not lead to their neglect for another winter. The Drumhead and Green Curled varieties were planted between the Potato rows in July; after that we lost sight of them amongst the Potato haulm for some weeks, but they are easily seen now, as many of the heads are from 12 lbs. to 20 lbs. in weight.

Celery I am not quite pleased with, as it is rather pithy. How this occurs I cannot exactly say, especially as I have had it

fairly good under the same treatment. Season, seed, or situation may have something to do with it, and I shall be glad to have some seed that can be relied on to produce really solid produce.

Parsley is also an important winter crop. Like Carrots I have found it partial to some soils. Many a promising row has died quite away with us before it was half grown. Remembering this I sowed seed more plentifully during the past summer as margins to walks and near the bases of walls, and there are no blanks anywhere. Probably the soot and lime added to the soil at digging may account for this.

Parsnips became a little rusty two months ago, but apart from this they made good growth and keep well. Turnips are growing, and sweet little roots are obtainable. The Lettuce and Endive were covered with frames and lights early in November, and have not kept so well as those left fully exposed. Radishes have kept up a supply. China Rose is the best winter variety.

Although early Potatoes were badly diseased, late varieties are keeping exceptionally well; no disease or decay of any kind is visible amongst them. Seakale, Rhubarb, and Asparagus roots are forcing freely, which leads me to suppose that they must be much better matured than they were during the previous two seasons, and it also makes me hope that this productive maturity will not be confined to vegetable roots alone, but will extend to all fruit trees and vegetation generally in 1881.—J. MUIR, *Margam*.

#### AVERAGES OF RAINFALL AT RANGEMORE GARDENS, BURTON-ON-TRENT.

	Totals for each 14 months for 14 years.	Averages for each 14 months for 14 years.	Monthly Rainfall for 1880.	Totals of each year's Rainfall for 14 years.
January .....	34.23	2.44	0.35	1866—38.30
February .....	27.96	2.00	1.78	1867—32.24
March .....	24.94	1.78	0.64	1868—31.70
April .....	28.31	2.02	0.89	1869—31.78
May .....	29.95	2.14	1.80	1870—24.25
June .....	39.97	2.85	2.87	1871—31.79
July .....	38.47	2.75	6.67	1872—48.72
August .....	52.66	3.76	1.51	1873—27.74
September .....	47.60	3.40	3.68	1874—22.45
October .....	46.30	3.31	4.19	1875—31.32
November .....	32.88	2.35	1.65	1876—29.91
December .....	37.46	2.67	3.47	1877—31.70
				1878—29.54
				1879—27.38

Average of first six months rainfall for fourteen years, 13.24 inches; second six months, 18.24 inches; average of yearly totals for fourteen years, 31.47 inches. Total rainfall for first six months of 1880, 8.33 inches; second six months, 21.17 inches. Yearly total, 29.50 inches. Total rainfall in fourteen years, 440.73 inches.

#### VICK'S CRITERION TOMATO.

DURING a recent visit to Norris Green I was much interested with a specimen of Vick's Criterion Tomato growing amongst other varieties in one of the houses there, and it is evident that whatever may be written or said about the true variety, it is nevertheless a fact that fruits can be gathered from the same plant and exhibited as distinct varieties without much fear of disqualification. The plant in question was bearing ripe fruits, those on the lower part of the stem being smooth as an egg, while those on the upper portion were distinctly corrugated and might easily be taken for another variety. Mr. Bardney thinks it probable that by cuttings the true characteristics of the variety may be maintained. The variations and peculiarities in the formation of Tomatoes, however, are not confined to Criterion; Trophy and Stamfordian, for example, are both subject to the same eccentricities, and convey the idea that it would be difficult for judges to disqualify a dish of Tomatoes because they are not the true variety.

I was more than repaid for my walk of five miles to visit these gardens by the many excellent examples of cultivation I saw there. Richardias were very numerous and in the finest possible condition. Calanthes tastefully arranged with Cypripediums and other choice plants had a very pleasing effect in the house devoted to them. Eucharises are well grown, one bulb in a 5-inch pot, and are remarkable for their health and vigour; a succession of these plants is maintained, and they are found valuable for room decoration. Tea Roses are very numerous and in good condition, and Poinsettia pulcherrima is well represented

by dwarf sturdy examples. The same may be said of Euphorbia jacquiniæflora. In the conservatory, amongst many plants that are bright and beautiful, *Luculia gratissima* reigns supreme. It is planted-out in a border and permitted to grow freely; it is flowering at every point, and its fragrance and immense trusses commend it to all who have the convenience for planting it out.

Every branch of gardening undertaken at Norris Green appears to be thoroughly carried out, and it is evident that Mr. Bardney is a sound believer in the proverb "Practise what you preach."—A. R. COX, *Elm Hall, Wavertree*.



THE inventor of the celebrated Gishurst compound has devised another substance that is likely to be of benefit to gardeners and others who are engaged on land and in woods. The substance in question is named GISHURSTINE, and is manufactured by Price's Patent Candle Company. It is an application for strong boots, and an excellent one. We have found that it softens hard leather and renders it impervious to water, while it is quite devoid of any unpleasant smell that renders so many kinds of "dubbings" disagreeable. We have also the following testimony from a gardener to whom we supplied a portion of the new substance:—"I have given the 'Gishurstine' a fair trial and can confidently recommend it. It was applied at intervals of a few days to a heavy pair of boots; the result being the very thick tops are gradually softening and becoming impervious to water. Well rubbed in before the fire, the dubbing is absorbed by the leather, and does not in the least interfere with the usual polishing. I should think the Gishurstine will prove a boon to gardeners, especially to those who are constantly using water." It will be equally valuable to sportsmen, farmers, and game-keepers.

— MR. ANDREW CAMPBELL of Ashford Gardens, writing to us on the DEFICIENCY OF HOLLY BERRIES in Ireland, observes:—"I have never seen the Holly so devoid of berries as it is this winter, and I learn from other parts of the country that none was left to brighten the Christmas decorations. Here there were numbers of berries in October, but at the end of the first week in November there was none to be seen. I think the sudden disappearance of the berries may be accounted for by the unusual number of blackbirds I see here this winter."

— THE same correspondent describes the TEA ROSE MADAME LAMBARD as one of the best for constant blooming out of doors. A plant growing trained to an east wall commenced blooming last May and continues to this date, the blooms being of remarkably fine quality. The best blooms were cut December 16th and 21st. Those were all that could be desired in size, form, and colour, and he considers this Rose worthy of extensive cultivation on account of its superior late-blooming qualities.

— MANY of our readers will regret to learn that the well-known floriculturist, MR. ANTHONY PARSONS, died on Christmas day at the age of seventy years. His skill as a horticulturist and the many new varieties of florists' flowers he has succeeded in raising have rendered his name well known in the gardening world. At the time of his death he was gardener to Captain Blake, Danesbury, Welwyn, Herts, where he had creditably fulfilled his duties in that position for nearly thirty years. It will be remembered that he was also member of the Floral Committee of the Royal Horticultural Society for several years, and frequently judged at the most important exhibitions held near the metropolis.



— WE are informed that the Annual Dinner of the HORTICULTURAL CLUB will take place at the Club House on Tuesday next the 11th inst., John Lee, Esq., in the chair. We are pleased to hear that the Club is prospering, many new members having joined during the past year.

— WE are informed by Mr. D. Thomson that the YEAR 1880 was the driest on record at Drumlanrig, Dumfriesshire, the total rainfall being only 33.1 inches, and 15 inches below the average of twenty-two years.

— RESPECTING the WEATHER IN NORTHUMBERLAND, Mr. E. Fister, The Gardens, Blenkinsopp Hall, writes as follows:—"Snow fell here on the 28th ult., but the weather appears to have changed, and we are more likely to have rain. Until the date mentioned we had dry weather with frequent frosts. During October frosts occurred on three days, the lowest temperature being 19° Fahr.; in November on fourteen days, the lowest being 10°; in December nine days, the lowest 17°."

— WE have been favoured with a sight of advance sheets of a NEW WORK ON HORTICULTURAL BUILDINGS by Mr. F. A. Fawkes. This will be of a very comprehensive character, and the subject will be treated in a way which has not hitherto been attempted. We shall merely mention a few of the heads, so as to give some idea of the manner in which the author intends to produce the work. We find such heads as "Astronomical" in reference to the Sun's Orbit, the Sun's Rays, Plant Life, Light Rays, Heat Rays, and Chemical Rays. Then the more practical work is treated upon—Inclination of Roofs, Transmission of Solar Rays, Aspect and Site, Levelling, Drainage, &c. The work will be ready in about a month, and will be entitled—*Horticultural Buildings; their Construction, Heating, Interior Fittings, &c., with Notes on some of the Principles Involved.*

— WE clip the following EXTRAORDINARY ADVERTISEMENT from the *Launceston Examiner* (Tasmania), of October 20th, 1880:—"NOTICE.—The undersigned having the largest and best stock of stove and greenhouse plants in Tasmania, for which he has paid cash for some four times their weight in gold. New and rare seeds I pay yearly to J. Carter & Co., London, the largest seed firm in the world, four times their weight in gold, from whom other seeds and plants are on the way from England. Being in debt I will not refuse any reasonable offer.—J. ALLEN, *Florist, Longford.*"

— MESSRS. J. VEITCH & SONS, Chelsea, announce that "A MANUAL OF THE CONIFERÆ" is in preparation, and will be published in March. It will be fully illustrated, and contain a general review of the natural order, a synopsis of the genera, species, and varieties suitable for the climate of Great Britain, and the culture of Coniferæ. That much valuable instruction will be given under each head we have no doubt, and the work is likely to prove one of considerable general utility.

— MR. J. M. COVENTRY, lately with Messrs. Waite, Burnell, Huggins, & Co., has commenced business as seedsman and florist at 111, Gray's Inn Road, London, W.C.

— DURING the ensuing year Messrs. Sutton & Sons will offer a large number of SPECIAL PRIZES FOR VEGETABLES, MELONS, AND CUCUMBERS at some of the chief horticultural exhibitions. At the Royal Horticultural Society's shows and meetings the most important will be the following—On June the 3rd nine prizes, including two first prizes of £3 3s. or a silver medal and £5 5s. or a gold medal, the latter for Melons and Cucumbers. On June the 28th six prizes, with a first of £6 6s. or gold medal. On August the 5th and on November the 8th twenty-five prizes, including a £5 5s. first. At Manchester on August the 24th nine

prizes will be offered, with one of £5 5s. At the International Potato Exhibition twenty-two prizes, the chief being £7 7s. Messrs. Dickson, Brown, & Tait will also offer nine special prizes for Cauliflowers, Tomatoes, and Melons at the Manchester Exhibition in August.

— *Nature* has the following communication from one of its correspondents relative to the MOVEMENTS OF LEAVES:—"A year ago we had in our conservatory a healthy young plant of *Acacia mollissima*. It bore no flowers, but consisted of a simple axis adorned with the soft feathery leaves of its genus, which closed up at night. Our gardener, however, thought it would improve in appearance if it could be made to bear a few branches, and with that view he cut it back. His end was achieved: a new stem shot up from the section, and graceful limbs were thrown out in turn by it. But along with this a strange result followed: the fresh leaves borne by the new stem and by the branches now closed at night, while the old leaves below the section ceased to do so. These lower leaves have long since fallen off, but the upper ones kept to their habit, and at the present time all fold up at dusk save a few of the very oldest, which only partially shut, or, in one case, do not shut at all."

— THE *Scientific American* has the following in reference to A NEW OIL FROM GRAPE STONES:—"M. T. Fleury of Bordeaux, France, has explained the method by which a very valuable oil is obtained from the kernels of the Grape. The refuse left after distilling brandy or making verdigris is dried and ground fine in an ordinary mill, the yield of oil being in direct proportion to the fineness of the grinding. Some manufacturers first press without heat, obtaining about 5 per cent. of oil; afterwards the stuff is heated and pressed, with a yield of 10 or 15 per cent. more oil. The oil is of a light yellow colour, and in course of time obtains a density of 0.9202, at 59° Fahrenheit, and solidifies at about 3° Fahrenheit. Although it does not congeal so soon as other oils it becomes rancid and viscid when exposed to air, and, although it saponifies readily, the soap produced lacks hardness and density. Black Grapes contain much more oil than white Grapes, and the kernels of Grapes from Vines in full vigour yield more oil than those from very young or very old Vines. Generally black Grapes give from 15 to 18 per cent. of oil, white Grapes 10 to 14 per cent. It is probable that American Vines, especially those of California, yield more oil than French Vines. In the south of France 25 lbs. of kernels are allowed for 25 gallons of wine. It is easy to estimate the quantity of oil that is annually lost in Grape-producing countries. The extraction of oil from Grape kernels is by no means new. M. Fleury says that in 1800 there was a Grape oil factory at Olby which had been long in operation. Bergamo, Italy, produced the oil in 1770, and Rome and the vicinity of Aneona before 1782. It was also made in Naples on a commercial scale in 1818, and in Germany before 1787. The oil is sweeter than nut oil, and remains fluid at a lower temperature. When burned in lamps it gives a bright, smokeless, and odourless flame."

#### FLORISTS' FLOWERS.

IN commencing with the new year a series of seasonable notes on florists' flowers it may be well to take a retrospect of the past and ask this question, Are not florists' flowers faster gaining popularity than formerly? We answer in the affirmative. The prominence with which certain societies have during the past few years brought them before the general public is doing much to popularise them. The Auricula, Carnation, Chrysanthemum, Dahlia, Pansy, Pelargonium, and Rose Societies are all engaged in the same worthy object—the improvement and encouragement of an art that offers repose to many whose daily occupations are not perhaps amongst flowers. Where a few years since florists' flowers were almost unknown collections are now grown. Again, let us compare the Rose, Pelargonium, or Chrysanthemum of the

present day with the standard of excellence of twenty years ago, and note the rapid stride made in form, symmetry, size, and richness of colouring. Nor can it be said that we have attained the limit of improvement, for every year new and improved varieties are introduced by enthusiasts, showing how great is the field in which florists labour.

**AURICULAS.**—These are not attractive now, except so far as regards prominent hearts and stout clean foliage, which the florist always admires. To keep the plants in the best condition remove the lights from the frames on all mild and favourable occasions; but if frost sets in with any severity cover the glass every evening with mats or other suitable covering. A frequent examination is necessary, removing all dead or decaying leaves, and care must be taken that the plants do not suffer from a superabundance of moisture. If the soil in the pots is very dry select a mild day for supplying water, which must be done carefully without wetting the foliage. If the soil in the pots is not wet, and at the same time the foliage of the plants is dry, a smart frost will not injure Auriculas. Employ protection, therefore, intelligently, and do not let it degenerate into "coddling."

**CARNATIONS AND PICOTEEES.**—The chief attractiveness of the plants now consists in their cleanliness and health. The true florist sees beauty in his plants at all seasons when they are in satisfactory condition. He knows that to have beautiful flowers in July the plants must not be neglected in January. Slugs, worms, undisturbed decaying foliage, with a close and damp atmosphere, are their natural enemies, and must be guarded against assiduously. The same care in watering and ventilating is requisite as in the case of Auriculas in frames, and if the soil in the pots becomes close and there is the slightest signs of moss or weeds, an occasional stirring with a pointed stick, cleaning the plants at the same time, will be of great benefit. Plants in beds must also have attention; mulching the surface of the soil with cocoa-nut fibre refuse prevents injury both by frost and slugs. For rich and poor, town and country, few flowers are more suitable than those under notice, and none better repay for the attentive care of the cultivator.

**CHRYSANTHEMUMS.**—Cuttings of these may during this month be inserted in numbers proportionate to the demand, or as the old stools may produce them. Some varieties start much more readily than others; in fact, some of the Japanese varieties are very shy indeed in producing cuttings. The best means of increasing them is undoubtedly by the suckers that arise from the base of the plants. These may be taken off, and inserted either singly in small pots, or by placing several in the same pot and potting them off singly when rooted. If inserted now and placed in any structure where frost can be excluded they will strike readily. Those that are intended for specimen plants may be encouraged by a little warmth, so that the foundation of a plant may be laid as quickly as possible.

**HYACINTHS AND TULIPS.**—Either of these intended for exhibition about the middle or end of March next will require to be taken from under the covering of cocoa-nut fibre and coal ashes, where they have been placed during the past two months. Gradually inure them to the light. A good plan is to place a small pot over each crown for a few days, when they may be removed, the hole in the pot admitting light enough to gradually harden them. If the soil is dry water may be given on removal. Place the plants in a position near the glass in a cool greenhouse, and they will be found to advance very steadily. If some of the varieties are required to bloom earlier they can be placed in a warmer house; and if they are required late in the season—about April, they should at once be arranged in a cold north house or frame and retarded in their present stage, which will be found much easier than when the days are longer and the mean temperature higher. To keep them under covering in the dark after the second week in January would prove injurious.

**ROSES.**—Those in beds that have not been surfaced with manure should have that attention without further delay, as the manure not only protects the base of the plant from injury by frost but greatly benefits the roots. All vacancies should be filled as rapidly as possible, and all necessary staking and relabelling be completed at once. Climbers on walls must be nailed in and regulated, and the soil renovated around their roots.

**Roses in Pots.**—The first batch will be starting freely. Syringe them on all fine days to keep green fly in check. Prepare other plants by pruning and training to give a succession. Before pruning allow the plants to become moderately dry, then cut away all slender growths, and turn the points of the shoots towards the rim of the pots, and secure them in this position by means of string. This will check the rise of sap and make a dense dwarf-habited plant, instead of allowing two or three breaks to develop from the top to the detriment of the lower part of the plants.

Introduce them gradually to about 60° of heat. Plants of *Maréchal Niel* in cold houses are commencing growing, and may be regulated and the ravages of green fly guarded against.—A FLORIST.

### HORTICULTURAL EXHIBITIONS.

In taking a retrospective view of the flower shows in the past season it must be generally acknowledged that the gardeners of this country deserve great praise and encouragement for the skill and energy displayed in the high quality of their productions in fruit, flowers, and decorative plants. These have called forth the admiration of large numbers of visitors, and those who have not seen them have read with pleasure the published reports. I have no doubt many persons visiting those shows and hearing that prizes are offered in various classes believe those prizes to be of great value, highly compensating the exhibitors, and that growing plants for the shows is very remunerative. Now, if those who derive so much pleasure from a visit to such exhibitions were properly informed on the subject their generosity would, I think, be awakened, and they would unite in subscribing to give prizes that would fairly compensate the competitors, and would render the already beautiful displays still more admirable; indeed this is a subject of such national importance that it has a claim upon the public purse, for no money can be better expended than in encouraging a love for flowers. Many of the general public will, however, be surprised to hear, that though so much trouble and expense are necessitated in producing these excellent examples of cultivation, even growers who are fortunate in obtaining a prize often receive less money value than the expense of the carriage of the plants to the exhibition, and those who do not secure a prize are great losers. No well-thinking person can desire such a state of things as this, therefore all who have a love for the beautiful should subscribe freely to encourage local as well as metropolitan flower shows.

Enormous sums are subscribed for competitions, which have a baneful effect upon the community, and yet that which is most beneficial receives comparatively meagre support. It would at least be only just that all persons who bring plants and are not fortunate in obtaining a prize should be reimbursed their expenses. This would encourage many more to compete and add to the attractions of the show, and it will be generally found that the visitors will average in proportion to the attraction.—R. C.

### LÆLIAS IN WINTER.

THE genus *Lælia* comprises numerous species and varieties, all possessing considerable attractions and usually occupying an important position where either large or small collections of Orchids are grown. The delicacy or intense richness of the colours that distinguish the flowers, their elegant forms, and the very slight difficulty attending the culture of the majority of the species, render *Lælias* general favourites. Further valuable characters and recommendations are derived from the diverse seasons at which they bloom, for with the exception of a few months a supply of bright flowers is maintained throughout the year. Summer, autumn, and winter have each their characteristic species, all handsome and well meriting attention, but, as was remarked of the *Zygopetalums* last week, those that flower at the present time seem especially attractive, and a few observations concerning their respective qualities will be seasonable.

*Lælias* are epiphytal Orchids confined to the American continent, and chiefly abounding in Brazil and Mexico. They are very nearly allied to *Cattleyas*, and to casual observation they are not distinguishable, however botanists have decreed the possession of eight pollen masses sufficient to separate them as a genus from *Cattleyas*, which have only four. In habit, form of the flowers, colours, and beauty the two genera approach each other closely. Although the subjects of these remarks are all epiphytal in habit, yet several are cultivated in pots, the species of strongest growth being best suited for that mode of culture, the others requiring blocks. As regards temperature the majority need similar treatment to *Cattleyas*, but several, especially the Mexican forms, thrive best in a cooler house. For those grown in pots the usual compost of peat, sphagnum, and charcoal is suited, the drainage being abundant, and the supply of water liberal during the growth of the plants. These remarks are applicable to the whole genus, but especially to the winter-flowering *Lælias*, of which the most remarkable are briefly described in the following notes.

***Lælia anceps.***—A Mexican species of great beauty, that flowers during the dull season, and remains in good condition for a considerable time. It is extremely variable in colours and form of the flowers, but in the type these have broader petals than sepals,

both of a fine rosy hue, and a long lip blotched with purplish crimson towards the apex. The flowers are borne on the upper portion of a spike, which is frequently 18 inches in length. The plant is of robust growth and blooms freely, succeeding admirably

in pots. Of the numerous varieties, which vary principally in the colours of sepals, petals, and lip, the three following deserve special mention :—

*L. anceps* var. *Barkeriana*.—One of the most elegant forms, as



Fig. 5.—*LÆLIA ANCEPS* VAR. *BARKERIANA*.

the annexed engraving well indicates, and easily distinguished by the sepals and petals being of equal width. They are of a delicate rosy tint, the lip being broadly margined with intense purplish

crimson, and streaked inside with a similar hue ; in form it is also longer and much more acute than in the type. It was, like the species, found in Mexico, and was named in honour of George



Barker, Esq., of Birmingham, in whose collection it first flowered about forty years ago.

*L. anceps* var. *alba*.—A beautiful companion for the one last described, which Mr. W. Bull of Chelsea has placed in commerce. It is a native of Mexico, where it has been found at elevations of 8000 feet above sea level, and consequently is admirably adapted for culture in cool houses. The flowers are pure white, the lip only having a few yellow streaks, which serve to more clearly show the chasteness of the other portion of the flower. It is a charming variety, and cannot be too highly recommended.

*L. anceps Dawsoni*.—Another pretty variety that flowered in the celebrated Meadowbank collection about thirteen years ago, after the proprietor of which it is named. It has white sepals and petals, but the lip is streaked and blotched with crimson and purple, the lip undulated and margined with white. When in good condition the contrast is very striking.

*L. acuminata*.—This species, also from Mexico, is grown both in pots and on blocks, but it succeeds much more satisfactorily under the latter mode of culture. The seape is slender and arching, bearing near its extremity several flowers of moderate size, the sepals and petals of which are white, of a wax-like texture; the lip also white, with a rich bright purple blotch at the base, imparting a very distinctive appearance to the flower.

*L. superbiens*.—Remarkable for its strong growth and the great length the spike attains, frequently exceeding 4 feet, and bearing a dozen or more flowers on the upper portion. The blooms are large, 3 to 4 inches in diameter, with rose-coloured sepals, the petals shaded with darker tints, and the crimson labellum streaked with yellow. It is one of the most handsome in the genus, and requires culture in pots and moderately cool treatment.

*L. albida*.—A neat and attractive species, compact in habit, with spikes 6 to 8 inches long. Flowers of medium size; sepals and petals white; lip pale crimson streaked with yellow. Succeeds on a block in a cool temperature.

*L. autumnalis*.—This usually flowers as late as December or January, and, like the last-named species, requires to be grown on a block. The flowers are large, the sepals and petals purplish with a yellow streaked lip. It varies considerably in the richness of the colouring, several well-marked varieties being known.

In several collections of Orchids most of the above may be found in flower together, but *L. anceps* and its varieties are now particularly attractive.—L. C.

#### HEATING BUILDINGS.

HAVING carefully perused your notice of Messrs. Weeks & Co.'s new mode of heating buildings, I am desirous with your permission to state that the system described and illustrated in the last issue of your valuable medium for discussion and investigation, the *Journal of Horticulture*, is an adaptation of Tobin's ventilating tube and Taylor's patent warming and ventilating system; both in their way as nearly as possible perfect in their aim and action.

As many of your readers may not understand the nature of these inventions, permit me to explain that the former is an air-shaft or chamber with a valve to open or close at the top, which is about 5 feet from the floor. This air-shaft may be plain or ornamental, and may be fixed in or against an external wall by preference, or may be placed in any other convenient position in the apartment, so that an air-duet can pass from the outside of the building and be connected with its lowest extremity for the purpose of admitting a constant supply of pure air. Messrs. Weeks' air-chamber in wall and air-duet through wall communicating with it at its lowest extremity, is identical with Tobin's tube. Taylor's patent warming and ventilating system is obtained by placing the hot-water pipes in cases or air-chambers having an air-duet passing from the outside of building to the end if horizontal, or lowest extremity if vertical; and an orifice of a proportionate size at the other end, or upper extremity of such casing or chamber, the pipes being so arranged that the pure cold air in its passage through the chamber plays upon their entire surface, and so becomes thoroughly warmed before passing into combination with the air of the apartment. This system is automatic in its action, for the hotter the apartment becomes the greater is the inrush of cold air over the pipes, and *vice versa*. As to the position of their coil of pipes under the windows, I can only say that Messrs. Weeks could not have chosen a worse, for if the fresh air requires cooling by passing the glass, why go to the expense and trouble of warming it?—F. W. FLETCHER, 13, Great George Street, Westminster.

THE CHARLEVILLE GRAPES.—Referring to the paragraph

under the above heading in your last week's issue, I beg to say that, owing to misprint of a figure in the local journal from which you quote, there is an error as to the weight of the bunch of Grapes exhibited by Mr. Roberts at this Society's late Winter Show. The exact weight of the bunch was 21 lbs. 6 ozs., not 26 lbs. 6 ozs.—A. BALFE, *Secretary of the Royal Horticultural Society of Ireland*.

#### INSECT HAUNTS.

I HAVE frequently read and heard lately that insects have become more plentiful in our gardens in recent years than they were previously. I think this is true, and it suggests that either the many insecticides which have been introduced during the last twelve years have not been so efficient as was stated, or they have not been promptly and properly applied, for both out of doors and under glass insects keep up their numbers. This should hardly be the case in modern glass houses, as these certainly do not afford so many harbours as the old heavy timber erections; but I think if a little more attention were paid to the subject of insect haunts we might probably have fewer enemies to contend with.

Under glass few pests are more trouble or worse to exterminate than mealy bug. I keep a few in a vinery here I might almost say to experiment on with new insecticides, as I never miss a chance of trying the effects of a new introduction. This time we must have nearly exterminated the insects, as we have given them a strong application, not of our "own" concoction, but of all the others together, and at the same time we have been more careful in clearing out and closing up their harbours than formerly.

I find one of the very worst of these is just on that part where the wood is cut in pruning. Hard well-grown Vine wood does not show any indenture when newly cut, but before the bunches are well formed the pith in the centre of the wood has drawn in and left one of the finest harbours for bug. It is there they congregate during the growing, and defy all means to get them out. I proved this when the Vines were growing last summer, and I was reminded of it again this pruning time, as, although few bugs could be seen in the stems, they were crowded-in to the pith of last year's wood. I have been very careful to cut all these knobs off; and wherever a cut has been made, either in removing old wood or pruning new, the wound has been immediately sealed up with Thomson's styptic. I know this is beneficial in preventing Vines bleeding, but its worth is doubled when it keeps bug out of such harbours. Some say, Wash the glass and woodwork; but my opinion is that mealy bug will not harbour in dead wood if fresh material is at hand, and if the insects are cleared off and shut out from the Vines there would be less difficulty in eradicating them from other parts.

At the bottom of the stem, especially if there is any roughness, is another favourite resort of theirs, and this does not apply to Vines, but to plants in pots as well. In cleaning the latter the leaves only are frequently sponged, but it is at the axils the insects harbour most. Broken rough ends about Peach, Fig, and other trees and plants under glass afford similar harbours, as do also trees in the open garden. If the precaution is taken to cut the wood clean there will not be so much chance of their finding suitable quarters.

Old garden walls, with the joints between the bricks and stones looking as if a flood had washed the mortar from them, are shelters for snails, woodlice, and many others, and rarely can uninjured fruit be gathered from trees against such a position. Too much refuse is frequently allowed to accumulate in kitchen gardens to the encouragement of slugs, snails, and other destructive insects. It is generally the practice to attempt the destruction of insects only when the young vegetables appear above ground; but if gardens were well dusted with lime in winter many insects would be destroyed, the progeny of which would otherwise be a source of great annoyance in spring. I am a little ignorant as to the position of the winter haunts of wasps; but perhaps some of your readers will inform me on this point.—A KITCHEN GARDENER.

#### ROOT-PRUNING AND SUMMER-PRUNING FRUIT TREES.—No. 3.

THE system of summer-pruning by many gardeners of the present day is very different in some respects from that of old practitioners. When I first entered the garden I was given to understand that the shoots on wall or pyramid fruit trees should not be interfered with until midsummer, the reason being that they would shoot again from the lower buds if stopped earlier in the season. At that time the operation was commenced in earnest,

and the shoots on the upper half of the tree were all cut-in to about four or six leaves from the base. The shoots were not removed until a fortnight after from the lower portion of the trees, so that they should not receive too great a check at one time. Many thoughtful men of the present day are acting differently in this respect; but while we differ from the old school on many points we shall still do well not to quite lose sight of our forefathers' teachings.

I will now say something on the present practice. As soon as the trees have made shoots with four or five leaves they should be examined, and the points of the strongest must be pinched out. This will throw more strength into those remaining, so that in a fortnight or so these may be shortened in a similar manner. After this they will produce two shoots; these may be reduced to one leaf from their base. By adopting this system the trees do not receive a severe check at any time of the year, and they will produce strong healthy foliage, fully exposed to sun and air; and the fruit, receiving the same benefit, will be of a much brighter colour and far better flavoured than fruit that has been much shaded and then fully exposed.

I would advise all those adopting this system of pruning to leave the terminal shoot of each branch untouched until the autumn, as the season passed through will teach the cultivator how much it is necessary to reduce these shoots. In addition the sap is kept in regular motion if the points are not interfered with; but this would not be the case if they were shortened early in the season, except with a very vigorous shoot, which should be stopped, and so maintain as evenly balanced a tree as possible.

If time can be given to carry out the above instructions there will be little need to send a man to prune and nail trees on walls when he can hardly hold knife or hammer, and he could do double the amount of work in warmer weather. I do not include the pruning of the Peach in the above, as I referred to that in previous papers, so it will not be necessary to say more respecting it now.

In conclusion, I may say if too vigorous trees are carefully root-pruned and the branches attended to as advised, and with favourable weather, we shall be well repaid for the time and labour bestowed on them.—ROBT. D. LONG.

### MARTYNIAS.

MANY cultivators of annuals are familiar with the beauty of at least one species of this genus—namely, *M. fragrans*, which is undoubtedly the most attractive and best adapted for growing in gardens. Either in pots or borders during the summer it produces its rich crimson-purple flowers freely, which are rendered additionally pleasing by their powerful and agreeable fragrance. To obtain it in good condition outside the seeds should either be sown in a rich light warm border about April, or earlier in a frame, in the latter case potting off the young plants singly, hardening, and finally transferring them to the border. Both methods give satisfactory results, but it is sometimes found advantageous to immerse the seeds in warm water for a short

period previous to sowing, as they are otherwise rather liable to remain dormant for a long time, or to germinate irregularly. Some of the plants may be retained in pots for the greenhouse or conservatory.

Several other species of *Martynia* are known, but they are inferior in beauty to the one described, though perhaps they are more remarkable for their peculiar seed vessels. *M. lutea*, for instance, has dense spikes of orange-yellow flowers with crimson spots, and is occasionally seen in good condition in greenhouses, but the fruit as shown in the annexed cut is strangely formed. All the species are characterised by this peculiarity, though in some it is much more strongly marked than in others. It is of rough woody texture, terminating at first in one prolongation, which as the fruit ripens



Fig. 6.—*Martynia lutea* (fruit).

separates into two curved hornlike appendages, frequently 6 inches in length, that prove highly obnoxious to travellers in the portions of America where it abounds. I have in my possession a fruit which exceeds 9 inches in length, the "horns" being quite hard and sharp as spines.

Other forms are *M. proboscidea* and *M. triloba*, not very attractive in their flowers, but peculiar in their fruits; the last-named is also known as "*Unguis Diaboli*," a very significant title. *M. di-*

*andra* is occasionally grown, but it is not so free in flowering as *M. fragrans*.—R. L.



### KITCHEN GARDEN.

WITH the unusually fine weather in autumn and early winter all outside operations should be in a forward state, but when from unavoidable circumstances such is not the case, no time must be lost in turning up all vacant spaces, so as to give the full advantage of frost in pulverising the soil previously to planting. This is very necessary in strong soil, and if neglected now it adds considerably to the difficulty of sowing or planting. As opportunity offers, the present is a good time to examine the stakes required for Peas and runner Beans, having them sharpened and dressed ready for use. Take up and place under cover any early Broccoli, such as Veitch's Autumn and Snow's Winter, of which, with Cauliflower in pits, a supply will be maintained for some time yet.

### FRUIT HOUSES.

*Pines*.—The progress of plants generally after potting depends much on the condition of the materials employed at the time of potting, hence the importance of attending to these matters previously, so that everything will be in readiness at the time it is wanted—usually in March. The necessary quantity of soil should be placed where it will be moderately dry without becoming extremely so, but it must not be broken up until just before it is needed for potting, as only the fibrous part of the loam is required. Give careful attention to suckers which are to be started soon; and as these are obtained chiefly from winter-fruiting plants, they should, if possible, remain on the stools until required for potting. The night temperature for fruiters and for plants which are about showing fruit should range from 60° to 65° at night, and 65° to 70° by day from fire heat, and 75° to 80° from sun heat; and whenever circumstances permit ventilate slightly, and take advantage of every opportunity to close with a little sun heat, sprinkling available surfaces about the house.

*Vines*.—Great care is now needed in ventilating early houses, neither admitting currents of cold air nor neglecting to ventilate when requisite, to prevent the temperature rising too highly. Commence ventilation early, increasing it as the temperature rises, and when the maximum is reached the ventilation should be gradually reduced, and close the house early. Disbud and tie down the shoots before they touch the glass. In stopping do not be particular about the number of eyes beyond the bunch, but allow the wood to extend sufficiently to insure plenty of well-developed foliage. Overcrowding the foliage is, however, very injurious. Superfluous bunches should be removed as soon as the most promising can be selected. Avoid overcropping, and keep the house a little warmer and drier as the flowers open. Maintain the heat in the fermenting material, keeping a good heap of Oak leaves and stable dung in the reserve ground from which supplies may be obtained.

*Cucumbers*.—Continue a temperature of 70° to 75° in the day, and 65° at night, falling to 60° on cold mornings. Ventilate at the top of the house at 75°, and allow an advance from sun heat to 80° or 85°; but instead of admitting cold air it is better to allow the temperature to advance a little. Examine plants in bearing twice a week, removing weakly and exhausted growths, reserving as much of the young bearing wood as will maintain a suitable equilibrium between the foliage and roots, remembering that nothing is so unprofitable as crowding. Stop the shoots one or two joints beyond the fruit, being guided in this matter by the vigour of the plants. Dust a little sulphur over the foliage and pipes to arrest the progress of red spider and mildew, and upon the first appearance of canker press quicklime well into the affected parts. Young plants should not be allowed to bear too soon, and must not on any account be overcropped. Remove the staminate blossoms as they appear. The floors should be damped

at about 8 A.M. and 2 P.M., and again at 7 to 8 P.M., when the weather is severe and large fires are maintained. Sow seed now to obtain plants for pits and frames heated by fermenting materials. Where no better means exist of raising the plants a bed should at once be made up of equal parts leaves and stable litter thrown into a heap, turned over a few times, and damped to secure fermentation. A bed large enough to hold a one-light box will be sufficient, and a few inches of partially decayed leaves or tan placed in the frame will be suitable for plunging in, and tend to prevent injury by the escape of rank steam, which should, however, be guarded against by a timely preparation of the material. Thus early it is advisable to sow the seeds in 4-inch pots half filled with light rich soil, and as the plants advance in growth place more soil round the stems, which will prevent the check consequent on potting-off singly. A similar bed will also be necessary for raising plants of Melons for a first crop.

*Melons.*—Sow seed at once for the first crop. The seeds may either be sown singly in 3-inch pots, or a dozen seeds be placed in a 6-inch pot, the plants produced to be afterwards placed singly in 3-inch pots. In either case the pots should only be about two-thirds filled with soil, covering the seed about half an inch deep and placing them in a bottom heat of 80° to 85°, and a top heat of 70°. A compost of equal parts of turfy loam and leaf soil with a sprinkling of sharp sand pressed gently down will form a porous compost for the young rootlets, good drainage being essential. For early sowing it is desirable to employ such varieties as come quickly to maturity, among which may be named Davenham Early, green-flesh; and Blenheim Orange, scarlet-flesh.

*Peaches and Nectarines.*—In the earliest forced house the trees will now be in flower, and should have a night temperature of 50° to 55°, the latter not being exceeded on dull days, or very slightly, ventilating above that temperature, and allow an advance from sun heat to 65° or more, with free ventilation. In the driest and warmest part of the day artificial impregnation must be effected by distributing the pollen—shaking the trees if on a trellis, or with a camel's-hair brush or feather gently place the pollen on the stigma. Do not syringe the trees whilst they are in blossom, but the floors and borders may be damped in the morning and afternoon. See that the inside borders are sufficiently moist, and that the outside borders are protected with litter. Trees intended to afford ripe fruit early in June, which have had a rest of several weeks, should be syringed morning and afternoon until well advanced, when it must be discontinued, and damping the border instead in the morning and afternoon; 50° should be the temperature by day and 40° at night artificially. Ventilate freely from 50°, allowing an advance of 10° to 15° from sun heat. All trees in late succession houses should be pruned, dressed, and secured to the trellis. Top-dressing or renewal of the inside border with fresh loam must not be delayed. Any operation respecting the roots is best performed when the leaves are mature, and certainly ought to be done before growth commences. Ventilate as freely as possible so as to retard the swelling of the buds.

#### PLANT HOUSES.

*Store.*—At the commencement of the new year it will be necessary to start a few plants for early flowering. Allamandas that have been well matured and dormant have the wood hard and ripe. A. Hendersoni and Chelsoni are the best for early flowering, except A. nerifolia, which, perhaps, flowers the most freely of all, though not equal to the others as regards the individual flowers. Plants that are sufficiently large should be cut back to a point a few eyes from that they were pruned to last year, and others should only be allowed to retain well-ripened wood. Repotting may be done at the pruning time, removing half of the old soil, and if the ball be dry soak it in tepid water until thoroughly moistened. Turfy loam, a fifth of well-decayed manure, and a small quantity of sand is a suitable compost. The drainage must be good, and the potting done firmly. Place the plants near the glass and syringe them twice a day. Bougainvillea glabra, which is so well adapted for culture in pots, should also now be cut back and started, or the potting may be deferred until the young shoots are about an inch long. It will also be advisable to start a few plants of Clerodendron Balfourianum, but they must not be reduced at the roots, although the drainage may be rectified and any loose surface soil removed. Plants of the above that it is not desirable to start

for some time must be kept at the coolest end of the house, supplying them with little water, but do not allow the wood to shrivel. Retarding the growth by placing the plants in a low temperature must be avoided, as it frequently causes the loss of the roots. Deciduous and evergreen plants at rest should be fully exposed to light, as it will further assist the ripening of the wood. The temperature must not be increased until the days lengthen, 60° to 65° at night and 70° to 75° by day is sufficient at present. Ixoras and Dipladenias require the warmest part of the house.

## THE BEE KEEPER.

### THE PROGRESS OF BEE-KEEPING.

THE advent of a new year, while our pets are slumbering under the influence of frost and snow, is an appropriate time to review the progress of bee-keeping to the present time and to forecast the probable future of the science in these realms. For the two thousand years during which we have any record of the management of the bee it is probable that no rural pursuit has, until comparatively modern times, made so little progress. Until the close of last century the natural history of the bee was almost a sealed book. The researches of Reaumur and Huber, and more recently of Dzierzon and Berlepseh, first made really improved management possible. Following these came the great modern invention of the moveable comb, with the multiplied facilities it gives for purposes of observation and practical work. By its means, on the basis of real scientific knowledge, the various operations of stocking, depriving, uniting, dividing, contracting, enlarging, borrowing, and helping are now so thoroughly in the power of the bee-master that probably little remains to be desired so far as the hive is concerned. On one point only do I expect an early improvement, and that is in the shape of the comb, and consequently of the hive. Oblong combs of the usual type in bar-frames are undoubtedly a departure from the form naturally selected by the bees, and it remains for bee-keepers to devise a form as nearly approaching the circular as possible, keeping in view mobility and adaptation for supering; and I venture to predict that the many advantages such a form of comb exhibits will so commend it to the attention of bee-keepers that before the year is out we shall have before us a bar-frame hive on quite a new model.

Recent years have been particularly fruitful in inventions and discoveries that enable us in almost every emergency to assist the bees in their work. I need only refer to the improved methods of feeding with syrup, the discovery of substitutes for pollen, the porous quilt or chaff packing, the use of division boards, and the valuable invention of comb foundations. Whether the number of such aids can be increased or not, I venture to say we have yet something to learn in regard to the best methods of employing them. If the fraternity could only be induced to experiment on scientific principles, and publish results properly checked, instead of rushing into print with every new fancy, we should soon be able to form a code of rules bearing on all these operations that would not require alteration.

Equally recent, but not yet so widely diffused, are the two great inventions for depriving—viz., the extractor and the section, the former giving us liquid honey in its purity with comparative ease and rapidity, the latter enabling us to present honeycomb in its most attractive, convenient, and economical form. Here also we are disposed to think we are nearing perfection. The extractor is now a machine that leaves little to be desired, and the latest importations of American-made sections are marvels of ingenuity and workmanship. Only in the matter of separators do I desire improvement. Separators we must have if our sections are to be perfect in finish and fit to glass; but shall they be of tin, or perforated zinc, or wood, or paper? Let us settle this in 1881 by careful experiment.

The market for honey never was more hopeful. Our American friends, after raising a panic and creating a demand by their heavy importations a year ago, have to all intents left the field. So far as comb honey is concerned they have found it a ruinous speculation, and thus the field is clear as regards this our most valuable product. Even in extracted honey they are complaining of their returns; but here we think there is room enough for us both, especially since there is no difficulty in our realising paying prices even in face of their keenest competition. If bee-keepers could only be induced to grade their honey properly, there is no reason why a steady demand should not spring up.



There is honey and honey, from the raw insipid product of the orchard and Plane trees to the rich and piquant Heather, and from the vile aphid secretion called honeydew to the delicious nectar from Clover and Limes. Some of these grades should not be marketed at all; all of them should be labelled as what they are and priced accordingly.

The decade opens hopefully. Never before did the art of bee-keeping enjoy so great patronage. Our rapidly multiplying bee-keepers' societies are to a notable extent enlisting peers and peasants, clericals and laymen, into a common brotherhood. Exhibitions of bees and their produce are now the order of the day, attracting the multitudes as few shows in rural districts have ever done. Men of the highest attainments in science are being anew attracted to the study of the wondrous anatomy and habits of this tiny insect, while its special function in nature as the fertiliser of flowers is being made more and more manifest. It yet remains to see our industry enjoying the direct patronage of the Government as it does in other lands. The honey bee has both an educational and an economic interest that we venture to hope cannot long remain unrecognised in the highest quarters. Let us hope the near future will witness, under Government patronage, the establishment of bee-keeping schoolmasters in every parish, that the poor may learn how to obtain honey to sweeten their bread.—WILLIAM RAITT, *Blairgowrie*.

### CONGRESS OF GERMAN AND AUSTRIAN BEE-KEEPERS.

(Continued from page 606.)

SEPTEMBER 7TH was a day of honour for the meeting of the German and Austrian bee-keepers. At a quarter past ten in the morning Dr. Becker, as chief magistrate and representative of the city of Cologne, opened the meeting in the large Victoria Hall, where more than four hundred bee-keepers and visitors had assembled, among whom were many ladies, the Baroness von Berlepsch, the talented widow of the late Baron von Berlepsch, being prominently one of the number. In a cordial address Dr. Becker expressed the hope that when the fiftieth meeting was held it would no longer be a meeting of German and Austrian bee-keepers only, but an international one of bee-keepers of every nationality. He then introduced Counsellor Wüffling to the meeting as the representative of the Minister of Instruction, and Counsellor Wiesman as the representative of the Minister of Agriculture, Domains, and Forests. Mr. Wüffling, in a speech of considerable length, referred to the importance of bee-keeping as a branch of agriculture, as a proof of which he stated the Government grants valuable prizes and a sum of money in order that these meetings may be held; and, he continued, their excellent Exhibition, which he had viewed with pleasure and surprise, showed that this body of bee-keepers fully deserved the support of the Government. In the name of the Government he thanked them most heartily for their endeavours, and by command of the Emperor he had the honour to hand to their permanent Vice-President, Mr. Andreas Schmid, the decoration of the Order of the Crown. Loud applause continued while Mr. Schmid was being invested with the order conferred upon him. After Dr. Dzierzon had exhorted the meeting to continue in the path of progress, the appointment of fifteen gentlemen as Judges of the Exhibition was proceeded with.

These preliminaries over, the real business of the day commenced; and Mr. Vogel of Lehmannstöl, the faithful joint editor with Mr. Schmid of the *Bienenzeitung*, was called upon to introduce the subject of the normal size of hives. Mr. Vogel began by saying that Mr. Dathe of Eystrup, a well-known and highly esteemed bee-keeper, was to have opened the discussion of this subject, but he unfortunately died suddenly a very short time ago. When hives with moveable combs were first introduced they were generally made 10 Rhenish inches wide, this being the width adopted by Dr. Dzierzon. Some time later this distinguished bee-master made some alteration, reducing the width to 9 inches Rhenish measure. Hives are not, however, made of uniform size in every district. In 1874 this question of uniformity in the width of hives first arose at Halle, and it since had been discussed at various meetings. The Central Association for Saxony, Thuringia, and adjoining districts recommend a width of 23½ centimetres (9¼ inches English) inside, and the same was recommended at the Greifswald meeting. The speaker proposed that the meeting should adopt as a normal 23½ centimetres inside measurement as the width of hives, and 36 centimetres outside measure as the height of frames (18 centimetres the half frame) in order to arrive at uniformity for Austria and Germany. As to the depth of hives, this of course must be left to each bee-keeper to decide for himself.

After much discussion a majority of members finally decided in favour of the proposition of Captain Wächter of Merseberg, who made some observations, which were to the following effect:—"We bee-keepers of Germany and Austria, assembled in Cologne to celebrate the twenty-fifth anniversary of our meeting, desire that for Dzierzon's or Berlepsch hives, no matter whether Lager hives or Standers, as well as for all bee hives the ground plan of which forms a rectangle, the following standard should be adopted—viz., width of hive 23½ centimetres inside measure, 9¼ inches English; height of

half frame 18½ centimetres outside, about 7¼ English." Vice-President Sternberg remarked that the importance of this decision could not be over-estimated, and he was sure it would largely contribute to the advance of rational bee-keeping.

The second subject of the programme of the day was, "How have bee-keepers to proceed after a bad season in order to bring their colonies through the winter without much trouble and expense?"

Dr. Dzierzon, by whom the question was asked, reminded his hearers that in order to answer it satisfactorily every bee-keeper should first ask himself, How ought I really to have acted last year? It was advisable, he said, not to winter any colony which had not collected sufficient food, especially after such a bad season as we had had last year. It was the bee-master's duty to check the increase of his colonies early, and to unite only those colonies which had a reasonable prospect of surviving the winter. He recommended bee-keepers to make their colonies strong in population; to preserve only the most fertile queens; to deprive the colonies of their queen at the right time, in order that the bees may collect more honey; to reduce the number of hives; to unite colonies, and to keep till the following year any old comb which contains pollen. Mr. Lehzen was of a different opinion. He pronounced against the reduction of hives, and recommended the filling of honey casks in good seasons. As you are aware, he said, in seven years we have on an average two good honey harvests; three we may call middling good, two bad. Advantage should be taken of the good seasons to obtain as much honey as possible. According to Pfarrer Deichert it was not only a question of the quantity of honey collected, but also of its quality, of the arrangement of the combs, and the construction of the hive. He did not give the bees any honey which had become granulated, as it was injurious to them in winter. Honey gathered from the Rape blossom had a tendency to crystallise, and should be extracted by means of the slinger. He is of opinion, however, that sugarcandy, which is not expensive, cannot be sufficiently recommended for feeding bees in bad seasons. Pfarrer Deichert also recommends the piercing of the combs to enable the bees to move more easily from one comb to another, and the filling-up of empty spaces in the hives with moss, sawdust, &c., when the cold in winter is severe. Mr. Stursburg wished differences of climate to be taken into consideration, and stated that he had obtained most satisfactory results last winter from feeding his bees on the refuse from sugarcandy, an article still less expensive. Mr. Klausmeyer reduces his colonies to a moderate extent; he uses sugarcandy for feeding when the season is bad, and shuts off the queen from the comb, leaving her only a couple of long frames for breeding. Mr. A. Schlösser agrees with Dr. Dzierzon, and deprecates late and useless feeding. Günther is in favour of shutting off the queen from the entrance to the hive about the middle of June. In such cases he leaves her four to six half frames. Mr. Weygandt strengthens his small colonies by inserting some brood comb. The next question discussed was, "What are the essentials to be observed in order to winter colonies of German, Italian, and Carniolian bees well?" The word "June" in the twenty-sixth line from the bottom of my article on page 606 last week ought to have been printed "jars."—ALFRED NEIGHBOUR.

(To be continued.)



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Books** (*H. Martin, St. Honoré*).—If you write to Messrs. Asher & Co., book-sellers, Bedford Street, London, they will send you what you require, except perhaps Stendel's "Nomenclator Botanicus," which we think can only be obtained secondhand. The price of the "Treasury of Botany" (Longmans) is 12s. 6d.; Paxton's "Botanical Dictionary" (Bradbury), 25s.; and Johnson's "Cottage Gardener's Dictionary" (Bell), 6s. 6d. (*W. O. F., Rathkeale*).—We do not know of any works of the kind you appear to desire, and we do not think there are any published.

**Grapes in Peach House** (*Leeds*).—If the Peach trellis does not shade the back wall Black Hamburg Grapes would ripen on the aspect you name. The vines, considering their permanent value, would be best planted out and cropped lightly the first year. If you crop them very heavily the first season they will be of little use afterwards, whether they are retained in pots or planted in the border; but if lightly or moderately cropped they will improve in value yearly. They will succeed in ordinarily fertile garden soil with some wood ashes and a few bones added, and the surface mulched with good manure. They

should be shortened at once to the height required, and when the buds are swelling is a good time for planting.

**Seedling Apple (J. J.).**—The specimens were much bruised and had been kept too long, still there are evidences of merit in your Apple. We should like to see it another year. We will try the Potatoes; some shall be cooked and the others planted. Write to us again in the autumn on the subject.

**Vegetables for Exhibition (A. J. J.).**—The varieties to which you refer are, when well grown, highly suitable for exhibition during the respective seasons when the vegetables are in use. If you require more precise information and state the number of dishes you wish to exhibit, and the month in which the exhibition is held, your letter shall have our attention.

**Mice Destroying Peas (R. H., Bucks.).**—If the peas are moistened with paraffin, and when wet dusted with red lead, the mice will not attack them, and if the seed is sound and matured the dressing will not be injurious. If the rows already sown are covered 2 inches thick with sharp ashes and sprinkled with paraffin the peas will be comparatively safe; the ashes must, however, be spread 2 or 3 inches beyond the rows or the covering will not be effectual. You should trap the depredators. Many may be caught with figure-of-4-traps, and we know a gardener who last year caught scores of mice by sinking 10-inch pots so that their rims were level with the soil, the pots being half filled with water in which some bread was placed; the mice went freely into the pots and were drowned.

**Disbudding Vines (Reader.).**—Permit the growths to extend until you can see the bunches, then rub out the barren shoots unless they are very numerous, permitting the others to grow and set the fruit. When you have a sufficient number of bunches that promise to swell freely remove the others. You might indeed remove them before if you could insure a "good set," but owing to unfavourable weather and other causes the fruit on Vines in pots does not always set so freely as gardeners wish, and a few extra bunches do not exhaust the Vines provided the superfluous bunches are cut immediately the others are set, and before the berries are large enough for thinning.

**Pruning Figs (Idem.).**—The Fig tree shoots must be shortened for securing bushy heads, and the young shoots following may be topped when they are 6 inches long, so that a second growth may be made, which with good attention will form embryo fruits. You will find notes on Fig-pruning in another column.

**Ledsham's White Broccoli (Inquirer.).**—The name "Ledshaw," as it appears in the "Gardeners' Year Book," is, as you suggest, a "printer's error." The Broccoli referred to was raised by Mr. Samuel Ledsham, of Green Lane, Tarvin Road, Chester, and is named Ledsham's White. It is a variety of considerable merit, or it would not have been commended by the Fruit Committee of the Horticultural Society. It is to be tried at Chiswick, and is not yet in commerce.

**Removing a Peach Tree (Barker.).**—You may safely remove your five-year-old tree now, due care being exercised in the performance of the work. At a distance from the stem equal to the length of the branches, take out a trench 2 feet wide, and below the roots; into this trench carefully fork the soil from the roots, throwing it back as the work proceeds, and continue the process until the tree can be lifted from its place with its roots intact. Before, however, this is done have the station ready where the tree is to be planted. We have known men so thoughtless as to dig up a tree and carry it about "seeking a place" for it. By the time this was found the roots were so dry as to necessitate hurried planting, which means slovenly work and its attendant evils. Remove any injured roots, plant carefully, and do not force the tree the first season in endeavouring to have the crop ripe before July.

**Inarching a Vine (A. Novice.).**—As we understand your letter, the very strong Vine to which you allude is a Muscat of Alexandria, although you do not say so. The Vine named forms one of the best of stocks, and it being in vigorous health we should certainly prefer inarching it with another variety to removing it and planting a young Vine. If you have a Vine in a pot the work will be easy; if you have not, we should "bottle graft" the Vine, which is similar to inarching, the scion being sufficiently long so that 6 inches of its lower portion can be inserted in a wine bottle kept filled with water. The water will support the scion until its union with the stock is complete, and the growth will probably be as strong and free as would follow from a young inarched Vine with roots to support it. Your other question is fully answered on another page.

**Uncovering Vine Borders (T. G. G.).**—There is little doubt that your Vines sustained injury by the heavy covering of hailstones immediately after the manure was removed from the border, the Grapes at the same time having commenced colouring. When fermenting material has been on a Vine border for some months its removal must be effected with great care, and should not be done until the weather is warm and settled. It is often injudicious to remove the whole of the covering, as the roots may have penetrated it, and if not they are, or ought to be, quite close to the surface, and consequently especially liable to be injured by hail or drought. A layer of the manure surfaced with turfy loam, wood ashes, and bones would afford not only protection to the roots but sustenance of great value for the Vines. We have known instances when the injudicious removal of the covering material has resulted in Vines being in a worse condition than they would have been if the borders had not been covered at all. Placing fermenting material on Vine borders is often very advantageous, but it must not be placed on too soon, nor be removed too soon, as there is assuredly danger in both these extremes.

**Pear Tree Branches Dying (E. S.).**—In consequence of the extremely wet and cold season of 1879 the growths of many fruit trees were not matured, and the severe frost following had a most injurious effect on them. Even in the south of England the young growths of many Apple and Pear trees were quite killed last winter and others seriously injured. Your trees may have suffered from the same cause, and the wood sent also indicates that the roots of the trees have penetrated wet and unsuitable soil. As they are young we should lift them, removing all the most unhealthy and injured portions of the roots with a sharp knife; drain the land, prepare fresh stations, and replant in fresh loam and charred refuse, no manure to be mixed with the soil, but a good covering placed on the surface. All the dead and unhealthy wood must be cut from the trees, and with fresh root-action in good soil healthy growths may be expected to follow.

**The "Candle Cactus" (G. M. H.).**—The plant of which you send a specimen under the above name is *Cacalia articulata*, which has no affinity to a Cactus, being included in the natural order Compositae, but it probably owes the popular name you give to its peculiar fleshy stems. It is a native of the Cape of Good Hope, whence it was sent to this country more than a hundred years ago, and is now well known. It bears yellow flowers in late summer or autumn, and requires to be grown in a greenhouse near the glass. A light porous soil is needed, and moderate supplies of water in hot weather, but very

little at this time of year. Possibly you have the plant in too much heat, though the specimen sent appears quite healthy. The book you require is no doubt the "Cottage Gardeners' Dictionary," of which a new edition will be published in the spring of the present year. The price will be duly advertised.

**Keeping Pears (Idem.).**—A temperature of 40° will be suitable for keeping the Pears, but the fruit will be of much better flavour if ripened in a warmer place. If you place a few fruits at a time in a temperature of 60° to 80° they will not only be much improved in quality by the additional heat, but any given variety may be had much longer in use than if all the fruits were left in a cool place to ripen together.

**Peas for Succession (G. S.).**—The following are good and inexpensive, and vary in height from 3 to 6 feet:—Early—William I. and Essex Rival; second and general crops—Champion of England, G. F. Wilson, Dr. Maclean, Huntingdonian, Princess Royal, Laxton's Fillbasket, and Maclean's Wonderful; late crops—Veitch's Perfection, British Queen, Omega, and Ne Plus Ultra. We have named twelve varieties because you have desired us to do so, but if your only object is to ensure a succession of Peas of excellent quality half the number of varieties would be ample. We should prefer disentangling some of the growths of the Lapageria and tying them down instead of cutting down a portion of the plant.

**Papers and Plants "Boycotted" (S. T.).**—The publisher will attend to the question respecting the non-delivery of your paper. We are not "Boycotted," for the post office and newsvenders appear glad to take all the papers we can send, and we send all that are ordered. The *Selaginellas* we received from you were totally unrecognisable, as they were so small, crushed, and withered. The second box to which you refer we have no recollection of having received. If you send good specimens that arrive in fresh condition we will endeavour to name them.

**Names of Plants (A. Novice.).**—All the specimens were very much shrivelled, but 1 resembles a small leaf of *Grevillea robusta*; 2, *Alonsoa Warscewiczii*; 3, *Eupatorium riparium*. (W. J. M.).—*Sollya linearis*, a native of Australia, and figured in the *Journal of Horticulture*, vol. xxxvii, page 212.

#### COVENT GARDEN MARKET.—JANUARY 5.

BUSINESS remains very quiet, the only alteration being in Grapes, which are now in good demand and making full prices.

##### FRUIT.

		s. d.	s. d.			s. d.	s. d.	
Apples.....	½ sieve	2	6 to 4	6	Melons .....	each	0 0 to 0 0	
Apricots.....	box	0	0	0	Nectarines.....	dozen	0 0 0 0	
Cherries.....	¾ lb.	0	0	0	Oranges .....	¾ 100	0 0 0 0	
Chestnuts.....	bushel	12	0	16	0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0	0	0	Pears, kitchen ..	dozen	2 0 3 0	
Filberts.....	¾ lb.	0	0	0	dessert .....	dozen	2 0 4 0	
Cobs .....	¾ lb.	2	0	0	Pine Apples ....	¾ lb.	1 0 2 6	
Gooseberries ..	½ sieve	0	0	0	Plums .....	½ sieve	0 0 0 0	
Grapes .....	¾ lb.	3	0	6	0	Walnuts .....	bushel	0 0 0 0
Lemons.....	¾ 100	12	0	18	0	ditto .....	¾ 100	0 0 0 0

##### VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	0	0	0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ....	½ 100	1	0	1 6	Onions .....	bushel	3 6 5 0
Beet, Red.....	dozen	1	0	2	pickling .....	quart	0 0 0 0
Broccoli .....	bundle	0	9	1 6	Parsley..... doz. bunches	6	0 0 0 0
Brussels Sprouts..	½ sieve	1	9	2 0	Parsnips .....	dozen	1 0 2 0
Cabbage .....	dozen	0	6	1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0	4	0 6	Potatoes .....	bushel	3 9 4 0
Capsicums.....	½ 100	1	6	2 0	Kidney.....	bushel	4 0 4 6
Califlowers .....	dozen	0	0	3 6	Radishes.... doz. bunches	1	6 2 0 0
Celery .....	bundle	1	6	2 0	Rhubarb .....	bundle	0 4 0 6
Coleworts.... doz. bunches	2	0	4	0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0	6	1 6	Scorzonera .....	bundle	1 6 0 0
Endive .....	dozen	1	0	2 0	Seakale .....	basket	3 0 3 0
Fennel .....	bunch	0	3	0 0	Shallots .....	½ lb.	0 3 0 8
Garlic .....	½ lb.	0	6	0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0	2	0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 2 0 0



#### POULTRY AND PIGEON CHRONICLE.

##### A RETROSPECT OF THE HOME FARM, 1880.

WE have once more arrived at the period when we feel it desirable to review the circumstances by which the home farmer has been surrounded during the past year, many of them having proved most perplexing and disappointing as regards the practical operations of the farm. To the best of our judgment and experience we have during the past year continued to furnish in this Journal our weekly contributions under various headings, as well as the remarks referring to the work of the farm, which we felt to be necessary as the seasons advanced, when the work of the period may with advantage be anticipated and provided for. As in former years we have been particular in enumerating the practical operations of the farm, and although to experienced men



the details might have appeared unnecessary, yet our principal object is to inform the novice and the beginner in agriculture.

Our retrospect will commence with the month of October, 1879, this being practically the first month in the agricultural year, as it is the period for sowing Wheat, the chief sale crop or rent-paying produce of the arable land. It is remarkable that one of the lightest rainfalls on record was that in the three months of October, November, and December in 1879. This enabled the farmers in nearly every district, but especially in the midland and northern counties, to complete Wheat-sowing under very favourable conditions as to the weather. Unfortunately, however, much of the seed corn of that harvest was ill-matured, and the Wheat plant in consequence did not flourish in the winter; the frost, too, at times being severe much of the plant perished, or later in the spring was eaten by slugs. A very deficient plant of Wheat was the result in most districts, but as the spring wore on—the weather being dry in March, April, and May—the plants tillered and appeared very promising. Still the results were not satisfactory, although where a good plant was saved through the winter the Wheat yielded fairly in most instances, yet in those numerous cases where the plants were too thin they were so weakened by the tillering process and hasty growth that they fell a prey to blight and mildew during the heavy storms and floods which occurred in July, twenty-six rainy days being recorded during that month. With respect to the seed time for pulse crops as well as Lent corn, owing to the months of January to May inclusive being favourable, all these crops were sown in good time with the soil in fair condition throughout the kingdom. These crops promised well—especially Beans, Peas, and Oats—until July, when the dreneching and flooding rains rendered the crops so broken that they suffered in every district, especially the Barley, which in most instances was beaten to the ground.

The harvest for cereals and pulse crops commenced in 1880 during the first week in August, and with the exception of two heavy storms on the 7th and 25th days of this month the weather was generally favourable down to the 11th of September, thus giving time for securing the crops in the early districts throughout the southern and eastern counties in fair condition. From this date a general change of the weather occurred, and during the four or five following days  $3\frac{1}{2}$  inches of rain fell, which greatly impeded harvest operations in the late districts, and until the close of the northern counties harvest immense damage was sustained by all the cereal and pulse crops. Now, this was just the reverse of the operations during the previous year, for being late the northern counties enjoyed a favourable harvest, whilst in the southern and forward districts immense damage was done to all the cereal produce, a very large portion being unsaleable, and was used for feeding cattle and pigs. Referring to the crops of corn and pulse arising from the harvest of 1880 we give the following particulars, gathered from the various published reports of experienced men residing in different districts throughout the kingdom. Wheat is considerably under a good average. Barley, Oats, Beans, and Peas are, upon the whole, above an average. We must add, however, that the samples of Wheat are far better in quality than in 1879. The samples of Barley are not of so good malting Barley as was expected, and a large portion was seriously stained by heavy rains in the midland and northern counties. The crops of hay and also of green fodder were very deficient in most instances, and the early crops of hay as near totally spoiled as we ever remember having seen them. The second crops of Clover, however, owing to the continuous rains in July, proved of great bulk, and the dry weather during the harvest month enabled the crop to be stacked in good condition; we have therefore an average crop of hay for use, although for the most part both field and pasture produce of inferior quality. Root crops have greatly flourished, for although the Mangold seed did not generally vegetate with regularity, yet the few acres seeded early proved a magnificent produce, and the aftergrowths of the remainder being luxuriant an average crop has been the result. Of Swedes and Turnips, Cabbage, and Carrots there has never within our remembrance been a finer crop of rare feeding quality; therefore with an average crop of hay, although damaged, and an abundant root crop, the animals of the farm may fare well during the coming winter without any unusual outlay for artificial foods. The Potato crop, fast becoming an important produce to the home farmer, has this year upon the whole proved an almost unparalleled and healthy produce; but in various districts where the flooding rains fell with the greatest severity much of the crop has been lost by the disease. If, however, we take the aggregate produce we shall find that the Potato crop, as a whole, is one of the best quantity and quality considered that has been secured for some years.

The live stock of the kingdom, at all times both important and

interesting, has this year called forth unusual attention from the agricultural classes, consequent upon the enormous losses of 1879 by the eoathe and rot. Unfortunately the mischief has not ended with that year, but, in consequence of the storms and floods of July and the succeeding autumn months, much of the grazing and park lands of the kingdom have been seriously injured by floods. This has been the case more especially in some of the midland counties, and has again brought the entoza of the fluke into life and activity, and the flocks of sheep which depend principally upon grass feeding are again seriously affected by the fluke rot. Unfortunately this has in some instances been the cause of ruin to the farmers. We have, however, occasionally advised them upon the best way of avoiding this, by not feeding grass down too bare where the sheep have previously been coathed, also to allow them a good mixture of food the produce of the arable land, with a liberal allowance of cake and bean meal, and by all means to allow them access to salt, and have high and dry night quarters. At the same time we advise that such grazing lands should have a heavy dressing of salt twice a year, the quantity to be ascertained by experiment in order that it may not destroy vegetation. We hold to this matter tenaciously, because in our salt marshes where the sheep feed once a day we have never had a diseased sheep during the whole of our agricultural experience, although the sheep may have fed at some period upon meadows of very doubtful character upon the chalkhill and stonebrash farms. The sheep, although short of keep in the spring months, have proved more healthy than for some years past, and especially free from foot rot and foot lameness; in fact the fall of lambs has been a good average, and the general health of the breeding flocks on the hill farms has been good, they have also sold at a good price in consequence of the serious losses on the low lands and vale farms. We have only occasionally had to report pleuro-pneumonia amongst cattle, and typhoid fever in swine during the spring and summer—in fact, the health of cow stock has been good for several years, but during the past three months we have again to report serious outbreaks of foot-and-mouth disease in the horned cattle, sheep, and swine also, in several of the southern and south-eastern counties, and likewise in other and various districts, and the prospect at present is bad, because in spite of all precautions of the authorities the area of the disease seems to extend. No doubt the disease has been imported from abroad, in proof of which the country was entirely free from it for the past two years. It looks, therefore, that we shall have to make a new departure, so that all our cattle should be slaughtered at the port of disembarkation, except store cattle, which should be subject to careful and lengthened quarantine, because our present system of surveillance has proved ineffectual. For we have reason to believe there are districts where imported store cattle passed by the inspectors and sold as sound stock at the local fairs, have broken down with disease soon after arriving at their winter quarters. The seed time for Wheat has been very prolonged this autumn in consequence of fine weather only prevailing for short periods; it has, however, at last been concluded, and the young Wheat plant looks generally as strong and healthy as we have ever seen it. Let us, therefore, hope that our crops another year may prove more favourable than for several years past, and thus to some extent remove agricultural depression.

[In the fourteenth line from the bottom of the first column, page 602, last week, the word "deprivation" should have been printed "depreciation."]

#### RETENTION OF SOLUBLE MATTERS BY SOILS.

ONE of the many wonderful powers which the soil possesses is that of absorbing out of their solution in water certain substances, such as, for example, phosphate of lime and salts of ammonia. Our earliest information in reference to this absorptive power of soils was derived from the results of some experiments made in 1844 by Messrs. Thompson and Spence. They filtered solutions of salts of ammonia through layers of soil, and found that the ammonia was retained by the soil. In the Journal of the Royal Agricultural Society of England for the years 1850, 1852, and 1855 Mr. Way published the results of numerous experiments on the property of soils to retain certain ingredients of manure when subjected to the action of water. A certain quantity of the substance to be experimented with was dissolved in water, and the solution passed through a layer of soil of 10 inches or more in depth. The water which passed through was analysed, and in many cases it was found to have lost all or portion of the solid matters which it had contained.

Amongst the interesting results obtained by Way may be mentioned that soluble or superphosphate of lime was wholly removed from solution by the soil, and the superphosphate was not subsequently washed out by repeated applications of water to the soil.

The phosphate and carbonate of ammonia were wholly removed from solution; whilst in the case of the nitrates, and sulphates, and chlorides of ammonia, potassium, and sodium only the bases (ammonia, &c.) were retained, whilst the acids passed through.

Some bases are taken out of solution to a greater extent than others. According to Kullenberg, the salts and alkalies are retained according to the following order, the most readily absorbed being first—ammonia, potash, magnesia, lime, and soda. The last named base passes very readily out of the soil; and as nitric acid is also not easily retained by the soil, the nitrate of soda is liable to be carried out of the ground by drainage water.

The study of the composition of drainage waters throws light upon the absorptive properties of soils. The analysis of the latter shows that it contains the phosphates in large quantity, often from 0.5 to 1½ per cent. of potash salts, and small, but about equal, quantities of ammonia and nitric acid and of soda salts.

In the drainage waters the nitrates greatly exceed in quantity the ammonia compounds, and they contain much common salt. From one to twenty grains of nitric acid per gallon are often found in them; whilst it is rarely that in these waters so much as the twentieth part of a grain of ammonia is found. As for the phosphates, only the most minute trace is found in drainage waters, and often not even a trace.

As salts of ammonia and superphosphate of lime are retained with so much tenacity by the soil, these substances may safely be applied long before they are required for the use of plants. Farm-yard manure may be spread out upon the field in winter, and exposed to rain with perfect impunity; for the ammonia and phosphoric acid compounds which are carried down into the earth by the rain will be kept securely by the former until required by the plant. On the other hand, nitrate of soda should be applied only at the time it is actually required, or shortly before that time; for, as we have seen, this article is retained by the soil only to a very trifling extent.

It has been found that the very stiffest clays are not the worst absorbents of manurial ingredients. Sandy soils are not bad absorbents; but they are inferior to the light loams. The absorbent powers of the stiff soils are greatly improved by cultivation, by every process which renders them more porous. Just in proportion to the degree of porosity brought about by tillage will also be the beneficial effect produced upon the inert vegetable matter within the recesses of the soil by the action of the air freely admitted from without.—(*Irish Farmers' Gazette*.)

#### VARIETIES.

THE firm of agricultural engineers of Messrs. Ransomes, Sims, and Head of the Orwell Works, Ipswich, and 9, Gracechurch Street, London, will in future be designated Messrs. Ransomes, Head, and Jeffries, Mr. Sims' term of partnership having expired.

— SALICYLIC ACID *v.* FOOT-AND-MOUTH DISEASE.—The following letter has been published by E. H. Moore, County Analyst, Brighton:—"The valuable antiseptic properties of salicylic acid render it of infinite use as a local application in foot-and-mouth disease. Being perfectly harmless, it is equal to most of the remedies used without any risk. Its solubility is arrived at in a convenient form as annexed:—Salicylic acid, 60 grains; water, 1 oz.; glycerine, 2 ozs. Dissolve in a glass beaker at a gentle heat."

— LATE ENTRIES AT POULTRY SHOWS.—Complaints are frequent of secretaries receiving entries after the advertised date. A certain amount of unfairness cannot fail to result from the practice, as it gives the old hand who knows that his entries will be received a week or so after date an advantage over the beginner, who believes that the announced date is adhered to. Seldom, however, has the system been carried so far as at the recent Ryde Show; there entries were accepted so late that the catalogue was actually in print before they were received, and the numbers of many of the winning pens given in the prize list were not to be found in the catalogue. Moreover, the Secretary, who was the most to blame in the matter, actually wrote to our representative to ask him to draw the attention of exhibitors to the inconvenience he suffered from the late entries!

— SALE OF HOMERS.—We much regret to note the breaking-up of the stud of Belgian Homers, the property of Mr. John Hudson (of Pelican House, Peckham Road, London), which are advertised in our columns as for sale by Mr. Stevens, at his rooms, King Street, Covent Garden, on Tuesday next, 11th inst. Mr. Hudson has been so well known for the last forty years as an importer and breeder of

Homers—many of our best known birds, both for long distances and for taking prizes in the show-pen coming from his lofts—that we are sorry to hear of his retirement from the fancy.

— WHEAT-MEAL BREAD.—The Bread Reform League has had a conference at the Mansion House under the presidency of the Lord Mayor, and is supported by a distinguished and influential list of patrons. The object of the organisation is solely to impart information on the great advantages of Wheat-meal bread as made on Dr. Campbell Morfit's process of preparing the meal in a quasi-granular form instead of flattening it with the ordinary millstones, by which the flinty and irritative parts of the husk are retained. No one connected with milling or baking can become a member of the League, and there are no paid officials on the staff, all the funds that are subscribed being expended for the public benefit in advancing a system of bread reform. The League is anxious to forward at once to every clergyman, doctor, and chief magistrate in the kingdom an account of the Conference, and a copy of Miss Yates' lecture (which contains all instructions necessary for grinding the Wheat and home baking), so that those who visit amongst the poor, and those who in any way can influence public opinion, may be induced to promote a movement so highly conducive and devoted to the general welfare of both rich and poor. The Honorary Secretary of the League is Miss Yates (Ladies' Sanitary Association), 17, St. Edmund's Terrace, Regent's Park, London, N.W. We have tried this new bread and found it excellent, and superior to the ordinary brown bread now in use. We have also read Miss Yates' lecture, which contains information of practical importance.

— BANTAM CLUB.—We see that efforts are again being made to form a Bantam Club. While we think the Poultry Club is the proper centre for all fanciers, we must admit that the Bantam exhibitors have recently had much to complain of, and perhaps have special need for a club of their own. At Birmingham a pair of Pile Game Bantams were awarded first in the class for "Any Other Variety of Bantams, cock and hen," there being separate classes for Game Bantam cocks and Game Bantam hens, in which the Piles might have competed, and in which, in fact, most of the prizes went to Piles. Again, at Leeds there was a class for Game Bantam cocks, any variety; then classes for Reds, Duckwings, Blacks, Whites, Sebrights, and Any other variety. Here again Piles monopolised all the prizes. This case was perhaps more doubtful than the other, as, although there was a class in which Pile cocks might have competed, and did compete, there was no class open to Pile hens. We think schedules should be drawn up with more care to avoid questions of this sort arising, and we commend the matter to the attention of those about to form the Bantam Club.

— THE EXTINCTION OF PLEURO-PNEUMONIA.—In the "Veterinary Journal" for December, which is edited by Mr. Fleming, the following remarks appear:—"The measures applied by the Dutch Government for the extinction of lung plague have been crowned with the utmost success. The decrease in the number of cases has been rapid since the adoption of these measures, and from September 4th until October 2nd, the date of last information, no cases had been reported. Holland had been recognised as free from contagious bovine maladies by the German Government, and restrictions have been accordingly removed. It may be remembered that the measures adopted in Holland were voluntary inoculation where lung plague was not in existence; but on infected farms slaughter of cattle really diseased, and compulsory inoculation of those not showing signs of the malady, had to be carried out. The value of inoculation, as on other occasions, has been most clearly demonstrated, and has proved to be as certain a protective as vaccination is of human small pox. The mortality following inoculation has been small, and no instance has been adduced of the disease having been spread or perpetuated by the operation. The experience of Holland dispels many notions entertained with regard to inoculation, and we can only regret that unfounded prejudice and narrow-mindedness have prevented this most valuable prophylactic from saving the country many thousands of pounds."

— CAMBRIDGESHIRE ORNITHOLOGICAL SOCIETY.—The third Exhibition of poultry, Pigeons, cage birds, and rabbits, open to the

United Kingdom, will be held in the New Corn Exchange, Cambridge, on Tuesday, Wednesday, and Thursday, February 1st, 2nd, and 3rd, 1881, under distinguished patronage. The following special prizes are enumerated in the poultry classes:—1, Piece of plate or cup, value £5, will be given by the borough Members, W. Fowler and H. Shield, Esqs., M.P., in lieu of the first prize, for the best pen of Brahmas exhibited in Classes 3 to 6 inclusive. 2, Piece of plate or cup, value £5, will be given by L. C. C. R. Norris, Esq., in lieu of the first prize, for the best pen of Cochins exhibited in Classes 7 to 10 inclusive. 3, Piece of plate or cup, value £5, will be given by a few fanciers in lieu of the first prize for the best pen of Dorkings or French exhibited in Classes 11 to 14 inclusive. 4, Piece of plate or cup, value £5, will be given by the Rev. E. H. Morgan, in lieu of the first prize, for the best pen of Game or Game Bantams exhibited in Classes 15 to 20 inclusive. 5, Piece of plate or cup, value £5, will be given in lieu of the first prize, for the best pen of Hamburgs exhibited in Classes 21 to 25 inclusive. 6, Piece of plate or cup, value two guineas, will be given by Charles Reed, Esq., in lieu of first prize, for the best pen exhibited in Classes 26 to 29 inclusive. Special prizes, amounting to one guinea and a half will be given by G. C. Livett, Esq., for best four pens exhibited in Class 30. Specimens of poultry which have won a prize or prizes in open classes at the Crystal Palace or Birmingham Shows in 1880 will not be eligible for competition at this Exhibition. Special prizes are also offered for Pigeons and cage birds. All certificates of entry accompanied by cheque or post office order must be sent in or posted to the Secretary on or before Monday, January 10th. Late entries, if sent in or posted on or before the 15th of January, will be accepted only on payment of the ordinary entrance fee, and half that amount in addition for each entry. The whole of the specimens must be delivered carriage free at the New Corn Exchange, and placed in the pens or on the stages on Monday, January the 31st, or they will be too late for competition; if the carriage cannot be paid through, notice must be previously sent to the Secretary, otherwise the specimens cannot be received. Unhealthy specimens will not be exhibited, but immediately returned to the owners, and the entry fees forfeited.

## POULTRY AND PIGEONS

### POULTRY IN 1880.

THE year 1880 has been a favourable one for poultry. The spring was dry and not severe; and during the summer months, when excessive drought often retards the growth of chickens, abundant rains gave them a plentiful supply of insect food. Then came the lovely harvest time, which brought early birds into good feather and condition. A sight of one or two September shows at once led us to think that the year was not behind in early maturity of its birds, and the aspect of the great shows quite bore out this first impression. Many young birds of various breeds have been seen which at eight months old might well compete with adults, and which promise after another moult to grow into magnificent cocks and hens. In one or two instances so remarkable has been their size and development as to lead to controversies, or at least disagreeable insinuations as to their age. Objectors on this score should at least have some strong presumption, if not proof, of their point before entering protests against awards. In one notorious case not only was there nothing but the vaguest suspicion to support a protestor's plea, but abundant proof from independent witnesses was fortunately forthcoming as to the youth of an undoubtedly, in appearance, matronly pullet. The fact is that really careful and judicious feeding where birds are kept in small numbers can produce a size and early maturity which is quite surprising. On the whole we have not observed any great advance or decline in any of the most prominent breeds during the year. Dorkings are again, we rejoice to see, shown of the true Dorking form, and not the tall Malay-like creatures which bore off laurels some three or four years ago. This improvement has, we believe, come about from some of the most successful breeders of the variety temperately urging on the judges a return to the squarer type of bird, and from their continuing to show such in spite of much disappointment during two or three seasons. It has in part too, perhaps, been aided by some of the special admirers of Dorkings having frequently become their judges.

Competition in Light Brahmas becomes more and more severe, and the variety has been bred up to a point which would surprise the fanciers of a few years ago; the Darks are more stationary, but the one point which of late seemed lacking to the breed is, we are glad to see, now being regarded—viz., the combination of the fine size and robust form which the breed once had with the beautiful pencilling which has been produced within the last five or six years. In both varieties we regret to see the excess of vulture hocks which is now allowed. We always deprecated the making of hocks a necessary disqualification; but this is one thing, their requirement another. Such a change, too, from the standard of a few years ago is puzzling and discouraging to novices.

Cochins hold their own; in their case we regret even more than in the Brahma classes to see sweeping hocks in the prize pen. The Cochin is a bird of fluff and rotundity, and to our taste a stiff hock is as out of place on its legs as are sweeping sickles in its tail. Rumour says that there is to be a fresh attempt to obtain a new standard of excellence drawn up; if so, we hope that some understanding will be arrived at as to the most desired shades of colour for Buff Cochins, and the proper type of pencilling for Partridge, or rather we hope that choice in both will be left to the taste of breeders. At present some judges seem to have special narrow predilections to so exclude at times otherwise magnificent birds from the prize list because their particular tint is not the approved one. We have been specially struck here and there with Partridge hens considered of too grousy a shade which have been neglected.

Game are still perhaps more carefully bred to pedigree than any other breed, and, what is more, the great Game breeders seem well agreed among themselves as to all points desired, and generally unite in praising or condemning awards. Witness their unanimity of satisfaction at Mr. Lyon's wonderful double triumph at Birmingham. Polish and Spanish continue excellent in the hands chiefly of their old admirers. It is a pity that more practical breeders do not discover the fact that the former is not a delicate breed, and that for a table cross it is a most useful fowl. Hamburgs would be far more generally popular as exhibition birds if once for all trimming of combs could by general consent be abandoned. It is but a month since we heard a most enthusiastic admirer and successful exhibitor of the Black variety discussing whether he could keep it any longer on account of the way in which their combs are almost universally tampered with. Leghorns improve in size. We have lately seen the opinion of a clever fancier in point, that the yellow earlobe in this variety, to remove which much pains has been taken, is appropriate to the breed; here is another point of discussion for future revisers of the standard of excellence. Plymouth Rocks seem emerging from the variety class; we know not in what points they surpass the older Cuckoo breeds.

We have not in 1880 observed any striking additions to the said class, save birds which bore unmistakeable signs of mongrel origin, and which would therefore have been better placed in collections of cross-bred fowls. Bantams are promised a club! They need it, and we trust it may succeed. Japanese are the reigning favourites, and mustered strongly at the Crystal Palace. If the classification of Bantams were improved many almost extinct varieties might be resuscitated. Pekin Ducks continue their advance in popularity, and bid fair soon to be spread almost generally over the kingdom. We know of several cases in which kind and patriotic fanciers have given them to cottagers, who are finding them most profitable inmates of their little gardens.

That the year 1881 may not be behind that which is past we sincerely trust, and wish our readers much pleasure and profit from their poultry yards.—C.

### GRASS IN POULTRY RUNS.

It is generally understood that the best run for fowls is that composed of good grass. Experienced poultry-keepers always provide it when it can possibly be obtained, and beginners think, as a rule, that fowls will not do well until a grass run is secured. This is correct to a certain extent. A good grass run never fails to be an advantage, but it should not be forgotten that fairly good results have been had without it. In such cases I am inclined to attribute success to the care that is taken in other ways, and the provision made in finding a constant supply of green food to compensate for a deficiency of grass. Indeed I am of opinion, when this is done with due attention it is of much more benefit to the fowls than a bad grass run. When a large number of fowls are confined on a small run the best of skill and the greatest attention to cleanliness often fail to prevent it becoming half dead, and then it is worse than no grass, as it cannot be so readily cleaned as a sand, gravel, or earth run. But grass runs bear a great deal of



wear and tear provided they are well made at first. The smaller the space the more reasons there are that it should be well made, close in the grass, and firm in the bottom.

In making new runs turf can sometimes be had to lay down at once, but unless it is good it would be much better to begin with seed. Last April I tried both modes, and I decidedly prefer the seed, as it produced a dense mass of clean grass in a surprisingly short time.

Previously to sowing the seed it is well to have as great a depth of soil on the ground as possible. From 4 inches to 1 foot will do if no more can be had. The shallower it is the richer it should be made, and at all depths manure is beneficial. It should not be placed as a layer on the surface, but be mixed with the surface soil. This can be done on a dry day, and when the soil is in suitable condition the seed should be sown. Moderately thick sowing will produce the best turf, and the seed should be raked into the soil and rolled afterwards. The last operation may be repeated every two or three days until the grass is ready for cutting, and during this time the fowls should not be allowed to be on it. After the grass is high enough it must be cut frequently, which improves a lawn quickly in the bottom. In runs where the surface has become uneven the holes should be filled about the end of March and fresh seed sown. This will give a fine lawn for the young chickens when turned out in May and June.

When turves are placed down they should be beaten very firmly at the time, and rich soil underneath causes them to make more luxuriant growth than they otherwise might do.—J. MUIR.

#### PRACTICAL SCIENTIFIC POULTRY BREEDING.

THERE is hardly any subject upon which opinions more widely differ than upon the best method to be pursued in the breeding of exhibition stock. This diversity of opinion is perhaps to be accounted for by the fact that well-known breeders have succeeded in producing the uniformity of excellence aimed at by apparently widely different methods. We say "apparently" different advisedly, and we trust that before we have concluded the subject our readers will agree with us that the difference is more apparent than real.

To in-breed or not to in-breed is the question which first presents itself, and when that has been decided there follow other questions of almost equal importance. We propose in this and following papers to discuss scientific breeding as applied to poultry and Pigeons. The theory of breeding is similar to that observed by the breeders of larger stock, but in consequence of the difference of conditions existing as to length of life and similar matters the practice is of necessity dissimilar.

We do not intend to go very deeply into the scientific question, but rather to deal with the matter practically. It is necessary, however, that we should, for the benefit of less experienced readers, begin by defining a few of the leading terms. In the first place, then, what is in-breeding? It consists (for our purpose) in the mating of birds which are related in blood to each other. The relationship may be the near, as that of brother and sister, or remote, a mere fortieth cousinship for instance; but if there be any relationship between the birds which are mated it is in-breeding. "Prepotency" is another term which must be defined. It is the power possessed by a bird of stamping his or her likeness upon the progeny of a union to the exclusion of the likeness of the other parent. "Heredity" is the inheritance by offspring of the characteristics or likeness of their ancestors more or less remote. A "strain" is, properly speaking, a family with established and recognised points of mutual resemblance. A "breed" is generally understood to mean a natural division of species differing in certain distinct points from all other species. A breed may consist of several "varieties," agreeing in certain common features but differing in others. Varieties are generally artificially produced, or they may be produced by different climatic or similar influences operating upon certain individuals of a breed. They may also be the result of a "sport," which is an accident or freak of Nature, whereby is produced offspring differing in some important point or points from the breed or variety to which its parent belonged. "Throwing back" is a return by the offspring to the original or natural type of the parents.

The theory of "natural selection" and of "the survival of the fittest," to which we shall have occasion to refer, put shortly is as follows:—Birds, as other animals, in a state of nature select their mates partly on account of their superior strength, &c., and partly on account of certain beauties pleasing to the eye. In addition to this the weaklings of each brood die, and those the plumage of which is least adapted for concealment from predatory animals, &c., fall a prey to their natural enemies. In both these ways the

strength of the stock is kept up, and a particular type of plumage (that most pleasing to the eye of the other sex or that most suited for concealment from enemies) is perpetuated. "Artificial selection" is entirely different, and consists in the first instance in the arbitrary settling by man of certain features which he desires to perpetuate, and the perpetuation by artificial means of these features.

Having said so much by way of explanation we come to the first great question, Is in-breeding desirable? Much has been written on both sides of this question, and many statistics have been prepared by the advocates of each view. Into these we shall not go, but the concise result of the whole matter seems to us to be this: In-breeding is not of itself injurious. In theory you might in-breed for ever and do no harm, subject only to the proviso that the original pair chosen for the experiment were entirely free from any disease or latent tendency to disease. In practice this proviso is so difficult to fulfil that success in extreme in-breeding is the exception and not the rule. The importance in practice of this consideration of perfect health may be demonstrated thus: We take two birds, A and B, both apparently in perfect health. A is the bird of the exact type which we desire to perpetuate, and from whom we mean to in-breed. A has a latent tendency to, say, liver disease. B has no such tendency. From the offspring of the union of A and B we select the bird most suited to our purpose and mate it with A. This bird is half A and half B. The progeny of this latter union are three-quarters A one-quarter B. One of these again is chosen and mated with A. The produce are seven-eighths A and only one-eighth B. We have thus a number of birds partaking very strongly of all the tendencies of A, and having these intensified by the fact that they have only one-eighth of any other blood to counteract these tendencies. The tendency to liver disease has probably been developed by this into actual disease, and this is caused by the in-breeding. Had there been no in-breeding the young birds would only have had in them one-eighth of the blood of A and seven-eighths of various other letters of the alphabet, none of which probably had a tendency to liver disease. If both the original pair, A and B, happen to have tendencies towards the same disease the evil result will be arrived at all the more rapidly. It will be apparent, then, to our readers that however harmless in-breeding may be in theory, in practice the probability of evil resulting is most material. In future notes we shall endeavour to show that, notwithstanding this risk, the fancier can only hope for success by judicious in-breeding.

OUR apiarian department is with this number placed in connection with gardening, as more appropriate than associating it with the home farm and poultry sections of this Journal, and this arrangement will be continued in future under the heading of THE BEE-KEEPER.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1880.										
Dec.										
Jan.										
Sun. 26	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Mon. 27	29.712	32.1	30.9	N.W.	39.6	37.8	28.2	48.6	24.7	0.140
Tues. 28	29.235	41.0	4.1	W.S.W.	39.6	47.8	30.5	48.0	26.2	0.238
Wed. 29	29.586	51.5	49.8	S.W.	39.8	55.5	38.5	61.2	38.0	0.022
Thurs. 30	29.480	50.4	48.5	S.W.	42.3	51.4	49.2	51.3	44.0	0.532
Friday 31	29.374	35.4	35.0	E.	42.8	43.5	33.2	49.3	31.8	0.050
Satur. 1	30.337	33.7	32.4	N.	40.4	36.2	30.9	67.2	26.8	—
	30.359	33.9	33.4	W.	39.0	41.8	31.8	46.3	28.1	—
Means.	29.692	39.7	38.6		40.5	44.6	34.6	53.1	31.4	0.982

#### REMARKS.

26th.—Overcast and cold, sunshine for a short time at noon; misty towards evening.  
 27th.—Snow during night, which rapidly disappeared; mild and rainy all day.  
 28th.—Wet morning, clearing by noon; damp and mild throughout.  
 29th.—Mild and overcast with rain nearly all day; very heavy rain in evening and high wind; colder at night; at 11 P.M. fine and starlight.  
 30th.—Slight fog in morning, and ground white with snow from 7 till 9 A.M.; fair but cold rest of the day, with a glimpse of sunshine at 2 P.M.  
 31st.—Morning fine, clear, and cold; snow in forenoon; bright sunshine from 1 P.M. till 3 P.M., giving a good opportunity for seeing the solar eclipse.  
 January 1, 1881.—Cold, calm, and damp day; dull and overcast in evening, but milder.

\* A week of average temperature, but more than average rainfall. The total fall in the past year was 30.28 inches, which is about 5 inches above the average here.—G. J. SYMONS.



13th	TH	Royal Society at 4.30 P.M. Sale of Orchids at Mr. Stevens'
14th	F	Quekett Microscopical Club, 8 P.M. [Covent Garden.
15th	S	
16th	SUN	2ND SUNDAY AFTER EPIPHANY.
17th	M	Royal Geographical Society, 8.30 P.M.
18th	TU	
19th	W	Meteorological Society, 7 P.M. Society of Arts, 8 P.M.

### GALVANISED WIRE AND FRUIT TREES.

(Concluded from page 2.)

**P**UBLISHED evidence on this subject has shown that the injury to trees is by far the most pronounced where smoke prevails; and if the cause of that injury is due to the escape of acid from the wire then it seems to follow, as was stated last week, that all the worst wire—that containing the most acid—has happened to be sent to the vicinity of towns, and the best—that containing the least acid, to the country districts where the air is pure and the trees not nearly so seriously nor generally affected. It is not possible that such a division of injurious and safe wire could have occurred by chance; and the different effects of the wire, assuming that the escaping acid is the sole cause of the injury, can only be accounted for in one way—namely, that the wire has a much slower sale in the country than the town, and often remains in stock for a considerable time in the shops of local ironmongers until most or all the acid has escaped from it; but in towns it does not remain in stock nearly so long, and is consequently newer and more noxious to vegetation. This contingency is worthy of mention, for it is certain that old wire is much safer than new. Although the “escaping acid” theory of a practical man does not, to my mind, settle the question at issue in a satisfactory manner, it must not be altogether ignored, and it will be decidedly safer to use old wire than new, and especially that which does not bend freely, as its brittleness is evidence of its long immersion in the acid bath.

I pass now to another aspect of the case, and one that demands careful attention. Whatever injury may result from acid within the wire, I think it can be demonstrated that the branches of trees secured to zinc-coated wire are injured by the action of acid from without acting on the zinc surface with which the shoots are brought in contact. It is on this basis, and, so far as I can see, on this alone, that the different and conflicting statements that have been published can be reconciled, and this accord being effected we may hope to find an answer to the vexed questions—1, “Why is the wire injurious in some cases and not in others?” 2, “Why is the injury to trees so slight, or non-existent, in the pure air of the country, and so serious in situations where the atmosphere is impregnated more or less with the sulphurous compounds of smoke and vapours from ‘works’ and manufactories?” If these questions are not already answered, the following fact, which I think is indisputable, will complete the reply—namely, that sulphuric acid combined with zinc forms white vitriol—sulphate of zinc—which is a corrosive poison, and I will

further show that sulphate of zinc is the active agent of the injury under examination.

After the publication of the various letters on the question at issue, it was considered most desirable that a subject of such practical importance should not be left in the uncertain state it was. Different kinds of wire were therefore obtained last spring, to which the young laterals of Vines were secured in a small house in a decidedly “smoky district,” for it is within the sound of “Big Ben” of Westminster. The following were, briefly, the results:—1, New galvanised wire, serious injury. 2, One-year-old galvanised wire, slight injury. 3, Two-year-old galvanised wire, scarcely any injury. 4, Charcoal-drawn wire, no injury. 5, Copper wire, no injury. 6, Pure zinc wire, no real injury (but not put up soon enough). 7, Painted galvanised wire, new or old, no injury. Where the growths touched the new galvanised wire corroded specks were apparent in four days, and in a month the injury was severe, and was equally apparent on the shoots, tendrils, foliage, and berries that were placed in contact with it. Eventually the wire became covered with a thin film of oxide; as this increased the injurious power of the wire decreased, and towards the autumn the wire had little or no effect on the harder wood. Long before the autumn, however, and as soon as the effects of the different wire were apparent, the whole subject was considered, and I was supplied by Dr. Hogg with a packet each of oxide of zinc and sulphate of zinc with the object of proving the presumed safety of the former and danger of the latter. The results were exactly in accordance with the anticipations. On worsted being saturated with a solution of the former, tied round the stems and wires, old and new, and kept moist, no injury whatever followed; but on whatever kind of wire the sulphate of zinc was placed and the shoots attached to them, injury immediately followed, and this of a kind precisely similar to that communicated by the new galvanised wire. On examining laterals injured artificially with the sulphate of zinc with those affected naturally by the wire, no difference whatever could be detected between them; in fact, it was utterly impossible for anyone to whom injured portions were submitted to determine which had been injured artificially and which had sustained damage by ordinary contact with the wire. Some shoots that were girdled with worsted saturated with the sulphate of zinc were speedily killed, others that rested on the poisonous solution were only corroded on one side, the same as those resting on the wire. I am confident that whoever adopts the plan recorded will experience the same results.

We have here a few important facts in precise harmony with each other. Sulphuric acid combining with zinc produces sulphate of zinc—sulphate of zinc corrodes Vine shoots in contact with it; sulphuric acid is more abundant near cities and towns than in the country where there is little or no sulphurous vapour—injury to trees in contact with galvanised wire follows where smoke prevails, but is much less marked, when observed at all, where the air is quite pure; old wire covered with the protective and innocuous oxide is comparatively safe; new wire, especially near towns, is decidedly dangerous to vegetation that is in contact with it. These facts appear to point directly to the conclusion that the cause of the injury under notice is that above indicated, and, what is more, they do not seem to be so well reconcileable on any other basis that has yet been suggested.

I have examined the subject as closely, fully, and fairly as I have been able, with the sole object of eliciting the truth. Two years ago I was a disbeliever in the injurious effects of galvanised wire, now I am fully satisfied that it is, when new, highly dangerous in certain situations. It is, perhaps, too much to expect that all will agree with the conclusions arrived at; but those who differ will, of course, submit proof that the injury in question, that in many places has been so serious, has not resulted either from the escape of acid from the wire or the action of acid on its zinc surface, from a vitiated atmosphere.

Several letters relative to the injuriousness of galvanised wire have been received that it was not necessary to publish, as the writers simply repeated in substance what had previously appeared in the *Journal of Horticulture*, but extracts from a few of those letters may be given. "CIVIS" writes from Derby as follows:—

"Last spring I wrote two or three letters in your *Journal* calling attention to the injurious effect of galvanised wire for tying Peach trees, which called forth several replies disagreeing with my opinion as to the injurious effect upon the trees, notwithstanding I had all the galvanised wire removed and substituted copper wire instead; and no one need wish to see a better lot of trees in any house. They are full of flower buds and the wood ripened. I enclose you a small branch I cut off one of the trees that is tied to the back wall of my Peach house, and you will see for yourself the injurious condition of the wood. I found this branch had rested against a galvanised peg stuck in the wall, through which the copper wire ran. You will see it has eaten nearly through the branch, which in itself is a proof of damage the zinc wire will cause."

The injury to the shoot was very pronounced, and precisely the same effects are produced by placing a shoot in contact with sulphate of zinc, which corrosive substance forms on galvanised and not on copper wire. "W. E." writes from near Birmingham:—

"I planted *Habrothamnus fascicularis* in the border of a conservatory and trained it to galvanised wire. About a month after planting the leaves turned black and fell off, also the ends of the shoots were injured. I took it out of the border from the wire and potted it. When it had made shoots 2 or 3 inches long I returned it to the border. In a short time the same thing happened to it again. I again took it up and kept it in a greenhouse through the winter. The following spring I again planted it in the aforesaid border, but with the same results as before. I then had the wires painted, and the tree grew away amazingly. From observation I find that wire that has been in use some years to be harmless by being coated over with dirt, &c., which destroyed its injurious properties, and also think that the process of galvanising has something to do with it, some new wire being harmless and others very destructive."

Both the theories advanced receive confirmation from this letter. The coating of dirt, &c. (oxidation) preventing the sulphurous acid of the atmosphere of a smoky district acting on the zinc and producing the poisonous sulphate; while some "new wire being harmless and others very destructive," suggests that there is "something in" the mechanic's assertion that some wire contains more acid than others by a longer immersion in the bath, and that the acid afterwards "sweats out" and corrodes the plants. This view also applies to the following case. Mr. Allis writes from a presumably salubrious district, Bedfordshire:—

"Last spring I planted two houses with Peaches and Nectarines. The summer's growth was trained to new galvanised wire; the consequence is that many of the shoots are badly gummed. I have looked carefully through both houses, but I have not been able to detect a single instance of gumming except where the shoots came in contact with the wires. I have just had the wire painted with one coat of good white lead mixed with linseed oil. I am of opinion that one coat of paint is ample at one time, for this reason: If more than one coat is put on I am afraid it would scale off. Besides, it would be better to give the wires one good coat annually rather than two or three coats at one time, for at least two or three years. I have found that Cucumbers, Melons, and Tomatoes have been diseased where trained to galvanised wire. I have had my suspicions that Vines have been injured where the tender shoots have come in contact with the wire, but as a preventive I shall have all the wires painted with one coat of good white lead, and the walls with Carson's anti-corrosion paint, which answers the purpose admirably. We have tried it on galvanised wire, but it does not adhere to it."

This letter repeats a remedy that, so far as I know, has never failed; and it does not appear to be necessary to incur the expense of substituting copper for galvanised wire.

Mr. Geddes, writing from near Derby, attributes the injury

to the overheating of the galvanised wire by the sun. He states that

"The wires in a Peach house became so hot that no young shoot in contact with them could escape injury. I immediately had the wires painted with two coats of white paint, and a gentleman suggested that blue paint would be equally effectual. We painted again with blue, and never had a shoot injured since. Last summer we had two Peach houses painted. The painters painted the stout iron rods black, and every shoot that crossed those rods was burned; and by way of experiment a part was shaded from the sun and no injury followed there. Galvanised wire becomes too hot when not painted, and that is the sole cause of injury. Black or brown paint will not prevent the wire being heated; white will, as it is a non-conductor of heat."

That, as the Yankees say, is a "new notion;" but the overheating theory fails to answer the question that the wire under notice is injurious in some cases and not in others. The sun's heat is general, and is certainly as intense in the country as near towns—at Longleat, for instance, where galvanised wire is innocuous to vegetation, as near Sheffield and Derby, where its use is dangerous. Further, charcoal-drawn wire is black and safe; and old oxidised wire is much darker than new galvanised wire, while the latter, and lighter-coloured, is unquestionably the more injurious.

A Berkshire correspondent, "A. L. N.," writes as follows on imperfections in galvanising—

"Assuming for the moment that perforations in the zinc coating do exist—though they may, perhaps, be too minute to be visible with the naked eye—what will be their effect? At each one of them we have two out of the three requisites for forming a galvanic cell. We have the two dissimilar metals iron and zinc (the latter the most active ordinary metal that could be found for the purpose), and at some near point they are perfectly connected. The only thing, therefore, that is required for producing a slight local electric current is a drop of water, whilst a drop containing an acid will give a considerably stronger current. Drops of either kind may be supplied by the rain according to the situation. If they fall through the pure air of the country the raindrops will give feeble currents; if through the smoke-laden atmosphere of our towns they will have absorbed some of the sulphurous acid which is always present, and the action will be stronger. In either case its effect will be to dissolve some of the zinc, thus enlarging the uncovered portion of iron, which at first may have been a mere speck, till sooner or later it reaches some branch that is tied to the wire and subjects it to the fatal influence of the electric current. Several of Mr. Wright's facts tend probably to this explanation. He finds that—first, wire of the same metal throughout has no injurious effect (no galvanic action can here take place); secondly, more injury takes place near towns than in the country districts, because the rain contains acid in the former case; thirdly, immunity is obtained by well painting the wire—the paint closes the perforations and prevents the action. The alleged existence of free acid in the body of the wire is curious. If it is there and escapes in the manner stated, it would in doing so act more readily on the zinc than on the iron, and would thus produce the perforations in question. But independently of their being produced in this way, one would quite expect to find them, as zincing depends only on mechanically moistening the surface of the iron, which is itself far from homogeneous. Lastly, the almost passive condition which zinc assumes after exposure as compared with its chemical activity when bright and clean, would seem to account for old wire being harmless in cases where new would do mischief."

This is a very interesting letter, but whatever force the observations may have generally, they do not apply to the above-mentioned experiments, which, with four Vines out of the five, "not a drop of water" was applied to the wires. The Vines are grown under glass, and there is no leakage from the roof.

In purchasing new galvanised wire any that will not bend freely should be rejected. Unpainted and pliable wire may probably be safely employed in country districts where the air is pure, provided the wire is placed in water for a week before it is used for the extraction of any acid it may contain; but near towns and in manufacturing and mining districts the new wire cannot be regarded as safe if it is not well painted.

I wish to add that I have had the counsel of Dr. Hogg throughout this investigation, and I am indebted to him for valuable hints and suggestions in endeavouring to render an important and difficult subject plainer than it was before.—J. WRIGHT.

GARDEN REFUSE.—The articles on this subject that were published in your last volume were most timely, and another brief note will perhaps not be unacceptable. The accumulation of rubbish from various sources in different departments in a large



garden is considerable, which, when well incorporated with a slight admixture of quicklime, forms one of the best fertilising agents that can be employed for many purposes. Materials of this description do not usually receive sufficient attention. At times, therefore, when from the effects of frost or other causes the progress of ordinary work is interrupted, attention should be given to the materials which form the rubbish heap, turning them, and taking out such as are fit for use, and adding a little quicklime to what remains, well mixing it together in order to accelerate decomposition and furnish supplies as speedily as possible.—PRACTICALIST.

### STRAWBERRY FARMING.

(Continued from page 591, last vol.)

THE basis of all successful Strawberry culture, or of any other culture indeed, is a knowledge of the nature and habits of the plant we grow. I shall therefore shortly refer to them.

The botanical name of the Strawberry is *Fragaria*, and many species are found growing wild in both hemispheres. The typical European species is the Alpine Strawberry (*F. vesca*), the delicious flavour of which made it famous among the ancient poets. It does not appear to have been regularly cultivated for more than four hundred years, and during the earlier half of that period was very little improved from its native habit. It is peculiarly unaffected by cultivation, tending to reproduce itself with unvarying exactness. However, about 1727 a new species, more capable of improvement, was introduced from Chili (*F. chilensis*). Most of our modern varieties are the descendants of this. Strangely enough the other American species introduced about the same time (*F. virginiana*) seems to have been neglected for about a century, until its tendency to produce new varieties from seed was discovered. The Virginian Strawberry is the original of nearly all the famous varieties now cultivated in the United States.

It is to be noted that, in raising varieties from seed, we may find in the same batch three different kinds of plants—male, female, and bisexual, or perfect-flowered. This accounts for the occasional appearance of barren plants in our fields and gardens. Only the perfect-flowered varieties are worthy of culture, although good crops may be raised by planting those having pistils only, if every tenth row be occupied by either a staminate or perfect-flowered variety. The necessity for this precaution, and the consequent trouble and confusion, have led to the almost universal adoption of the bisexual-kind. Those who attempt hybridising, or allow seedlings to remain in the ground, ought not to lose sight of the facts. Even in perfect flowers, too, it is important to know that the stigma is ripe before the pollen on the same flower. Under proper precautions, therefore, it is comparatively easy to obtain a direct cross between selected varieties.

Besides producing seed the Strawberry propagates itself by forming new crowns and by rooted runners. Its seedlings are so unreliable we depend mainly on runners for new plants, though scarce varieties may also be propagated by dividing the crowns. The new crowns are produced year by year at the sides of those that have produced fruit, and soon after forming they emit new roots above the old ones, thus becoming almost independent of the parent stock. This habit accounts for the tendency of the plant to push itself out of the ground, and proves the absurdity of planting on the top of a ridge—a method too common in this quarter. In such a case the working of the ground and the influence of the weather soon deprive the plant of all chance of forming new roots. When, on the other hand, the plants are set rather under than over the level of the soil, an opportunity is afforded of year by year drawing in the soil so as to afford a chance to the new roots, and greatly prolonging the term during which a plantation may profitably remain.

Much difficulty is often experienced in selecting varieties suitable to particular localities. Perhaps no fruit seems so capricious in this respect as the Strawberry. The usual plan is to go on testing varieties for years till a suitable one is found—a wearisome and costly process. May not a little study of the habit of some varieties enable us to avoid in some measure such trouble? For instance, one variety is naturally strong in foliage, another only moderately so. The former will generally be found to fail in rich ground, the latter to thrive; while the opposite may be the case on poor soil. Again, some varieties, like Elton Pine, have long wiry roots that penetrate deeply into the soil, while others, like Rivers' Eliza, have short fleshy roots. The former will therefore thrive where the latter would starve, the one drawing its supplies from so much greater a radius than the other. Doubtless this property of the Elton Pine has led to its being the favourite in this district, where the soil is very poor. The other local favourites are likewise strong-growing deeply-rooted varieties, such as Excel and Rifleman. The tendency of a kind to

throw an excess of runners is also worthy of notice; for it may be taken for granted that if, after the first year, runners abound the fruit will be scanty. Of course, by constant pruning much may be done to remedy the evil, but on the whole it is better to select varieties with less erratic tendencies.

The character of the foliage should also be taken into consideration in selecting varieties. In shady cool localities the less heavily foliated forms are the best, as they allow the sunshine to act on the roots and flower buds; while in situations where the soil is light, and especially where there is a decided southern exposure, those with heavy foliage are to be preferred. The same selection should be made for localities more than ordinarily exposed to black frosts, the strong withered foliage being a necessary protection to the flower buds during winter; yet I have seen gardeners on the approach of winter shave their Strawberry beds with a scythe as close to the ground as possible, without even giving a mulch as an equivalent. Where late spring frosts are common it will often be found that varieties which, like Sir J. Paxton, throw their flowerstalks above their foliage are hopelessly blasted in a night; while others, like Excel, that hide their blooms under their leaves, escape. Such are a few of the considerations that should assist us in selecting varieties. Many others will suggest themselves to the observant.

A word more as to roots. Rooted runners continue to extend their rootlets from their extremities the first year until cold weather sets in. If these are to be transplanted in autumn they should be lifted very carefully and as carefully replanted without any root-pruning. Such plants will at once go on growing from the ends of the roots. The case is different with runners left till spring. By that time the roots have ripened, and will be mostly broken in the lifting. Such broken roots, like broken cuttings, do not throw out fresh fibres so readily as when cleanly cut. All spring-planted runners, therefore, should have their roots shortened by a sharp knife. The result will be a set of new fibres from the cut ends, and consequently a much stronger plant than if left unpruned. Such pruned roots should, however, never be placed in immediate contact with fresh manure, but be spread out in the moist soil.—WILLIAM RAITT.

(To be continued.)

### PROTECTING TEA ROSES.

THE old proverb of the uselessness of locking the stable door after your horse has been stolen has several times been brought to my mind lately on visiting the gardens of some of my friends. The last two winters killed nearly all their tender Roses. "They would be in time this year," said they; and early in November litter and mats disfigured their gardens. Up to now, the 5th of January, we have had very mild weather, and if in such weather we smother up our Roses and "coddle" our tender Teas woe betide us when the March winds and spring frosts come. I strongly advise my brother amateurs to have litter and matting and bags in perfect readiness, so that an hour's work will make all safe, but the policy of wrapping-up in mild weather on the chance of some day getting severe frost is a mistake.

Mr. George Paul says, "The fact is, we must 'watch' our Teas." This is quite right. We must thoroughly protect in severe weather, and when this weather changes suddenly we lovers of the Tea Rose must change our tactics, and remove from the immediate neighbourhood of our plants that light or heavy litter which if left close round them causes them to 'sweat,' and so to become a more easy prey to Jack Frost's next attack. I use cocoa-nut fibre. It is very clean, and easily moved with the hand. In half an hour I can cover or uncover one hundred trees. I have it about 8 inches deep. Many of my buds are starting on the Manetti. How precocious H.P. Lord Macaulay is! If this weather lasts much longer and we have a cruel spring untransplanted Rose trees will have a sorry time of it.—J. A. W.

### THE SEED ORDER.

I DON'T know how it may be with other gardeners, but making out the seed order with me is no small affair. True, it is simplified by practice, but I still spend many hours over it every season and return to it again and again. It is not that a packet or two of seeds, which may not turn out as well as the catalogues would have us believe, is a very serious affair; there are many things to be taken into consideration besides the actual purchase of the seeds. First, they cannot be grown without labour and room; and secondly, they may effect for good or for bad the successions which are expected to be kept up in all well-conducted establishments. When a man is spending his own money only he has a right to please himself in everything he buys, and if he is an enthusiast the interest he takes in his own experiments will to a



great extent compensate for any diminution of crop which may occur; but employers of professional gardeners know very little and care very little about the details of cultural experiments. A good supply of everything at the least possible cost is what they look for, and what those of them who allow sufficient means have a right to expect. What signifies it to them, for instance, whether a Bean has a white flower or a red one if the produce is equally good, or both? or whether the top of a Beetroot, which is not used for ornamental purposes, is black or green?

Possibly the craze for running after novelties simply because they are novelties is abating in some degree, but there are still many cases where novelties have the effect of pushing out standard things of sterling merit. Try promising novelties by all means, but my advice is, Never depend on them till you have proved them; there are now so many first-rate varieties of every kind of vegetable that a wrong selection is no excuse for a breakdown. Mishaps do occur, of course, in every place owing to a variety of circumstances under which we are at times helpless, but a seed order carefully made out and honestly executed will often do a great deal towards ensuring success.

I generally mark out first in pencil the quantities which I think are required at the margin of the catalogue, to be afterwards revised and corrected in ink as well as copied on to the order form. The catalogues so marked are carefully kept from year to year, and it is astonishing how the success or failure of the different crops will rise up before one's imagination as they are scanned over for the sake of guidance in the present selection. There is no need to refer to other memoranda, a figure signifying so many quarts of Peas or so many ounces of Onion seed will bring the whole crop very vividly before one's eyes, when judgment is easily passed on them even at this distant date. Last year I went out of my usual track in ordering Peas, as it was well known that all the better class of Marrows were imperfectly ripened, and consequently there were doubts about their germination. The splendid spring rendered these doubts almost groundless, but we cannot yet foretell the weather with certainty, and it is best to be on the safe side.

This year the seed is probably good (although I observe the best varieties are expensive), and if the exchequer will allow it we can again return to our favourite varieties. In naming those I grow I do not pretend to say they are the best for everybody; all I can say is that they are of good quality, they succeed well with me, and that I like them best of the varieties I have tried. William I. is as yet the best flavoured of the hardy very early Peas, and should not be discarded by anyone till he has personally proved another variety to be better. Last year for the second early I called in the services of an old friend which I had nearly forgotten, and was astonished at the quality of it; this was Eley's Essex Rival, and I mean to keep to it to provide two or three successions to come in between William I. and the real Marrow-fats. Among the Peas for general crops there are so many good ones that it is scarcely possible to be wrong in ordering any of them. Perhaps the most important thing to consider is the height, for when some of them grow 12 or 13 feet high, as they did last year, it is awkward for a short man to gather them, especially if he is in a hurry. I am still satisfied with G. F. Wilson and Veitch's Perfection for the main crop. I make several successions of them, and at each sowing two rows of each sort are employed. Generally speaking the middle of May is late enough to sow these.

For later crops the selection is a much more important affair, for good dishes of Peas in the end of October are reckoned among the best of dainties; and although the two varieties just named will often hold out very late in autumn if the weather is favourable, they are not quite so hardy as some other varieties to be specially recommended for that season. I have not yet seen a better late Pea than Ne Plus Ultra, but its height, which is 8 to 12 feet in good soil, is objectionable. Omega is nearly as good and is only 3 feet high, but I am afraid we shall not be able to have it again this season, and must fall back on our old friend with the Latin name and keep a pair of steps near. By-the-by, was the name given to this Pea in compliment to its height or to the season in which the crop is produced? About the 10th of June is the time here for making a last sowing of Omega. When earlier varieties are used they may be sown a week or a fortnight later. I do not remember seeing the Pea weevil during the past summer; did the previous wet year wash it away?—WM. TAYLOR.

**KING OF THE PIPPINS APPLE.**—In my opinion this is the best Apple in cultivation. This impression does not apply to any one particular merit, as it possesses every quality requisite in an Apple. In good seasons or bad seasons it never fails to produce a crop here. The fruit is extremely handsome in shape, high and

beautiful in colour, firm in flesh, and excellent in flavour. It is ready for use by the end of October or beginning of November, and retains all its qualities until March. I think it would not be easy to name another Apple which is in season for such a length of time; it is just as suitable for cooking as for dessert.—J. MUIR, Margam.

### SCIENCE IN HORTICULTURE.

AS the Potato disease has been ably and sufficiently discussed recently, and the matter remains very much the same as before, I will at present only refer briefly to the subject, which still remains a puzzle; and well it may do, for it defies all calculations and upsets all theories. Thus nothing has been more strongly insisted upon than change of soil. How, it is said, can ground which has become Potato-sick by having Potatoes grown on it year after year ever be expected to be free from disease? yet a short time ago I saw a man digging up in this parish, on a piece of ground which has grown Potatoes for thirty years and perhaps more, one of the largest healthiest crops of Potatoes I have seen this year, the ground, moreover, being moist and well manured, and in which last year there was considerable failure; while on my own ground, higher, of lighter texture, less manured, and after another crop, the failure was great. Does not this upset all the fine theories that have been set afloat concerning the Potato disease and the way to prevent it? If Science be all that it asserts itself to be, surely by this time we ought to have had something more certain than conflicting statements and fantastic directions as to culture.

I was very much amused the other day by reading in a contemporary a short statement on electricity as applied to horticulture. It was there stated that if a band of perforated zinc were placed round a plant and tied together with copper wire, a stream of electricity would be created which would shock the snails and slugs and prevent them doing anything so wicked as eating the plant enclosed by it. But this piece of cheap science is all fantastic. I have for years used the zinc collar without the copper wire and have found it quite efficacious in preventing their ravages. They seem to have a great objection to crawling over the rough surface of the zinc, and so, without even a chance of trying the electricity, keep clear of the plants.

Amongst the things which were impressed upon me from my earliest days of horticulture was that all pots in which plants were to be grown must be porous. Various scientific reasons were adduced why this was absolutely necessary. I was a little shaken in this when I recollected the slate tubs which Mr. Beck of Isleworth used; but all my early teachings were shattered when I saw this year the largest and healthiest collection of Auriculas I ever saw grown in highly glazed pots. Now the Auricula is not the easiest grown plant, yet here it was flourishing under conditions that were pronounced fatal to it. "Oh, but you will not find the roots coming out to the sides." Yes, I did, and apparently enjoying their position quite as much as in unglazed pots. I leave on one side the advantage or otherwise of this mode of treatment; but this is incontestable, that the plants flourish as well by this treatment as in the ordinary way, and here again science is at fault.

There was a great stir some time ago about carnivorous plants. We were assured that Dionæas, Sarracenias, Droseras, and such-like were furnished with a wonderful mechanism by which flies were caught; the plants fed upon them, increased in vigour as human beings would do on a meat diet, &c. This was denied by others; but as an ignoramus I should very much like to state that in going over Mr. Bull's wonderful establishment a little while ago I saw quantities of Sarracenia flava and Drummondii; the pitchers had indeed caught the bluebottles and other flies, but they had succumbed themselves, for they were all dead. Then, again, everyone who grows Heaths knows how the viscid varieties catch any number of flies—in fact more than any of the so-called carnivorous plants, and I never heard that anyone attributed any remarkable effect on the health from this strange diet.

Amongst other plants of which I have written a great deal in the Journal is the Gladiolus. Now here again I have been over and over again assured that I must not expect to grow it successfully in the same soil a second year; yet the most successful grower of them on a small scale I ever knew grew his for seven years on the same spot.

These are a few of the instances which have occurred to me, and which have certainly led me to the conclusion that when anything is very dogmatically put forward as to be accepted on scientific grounds I must "bide a bit." The story is well known of Charles II. puzzling his courtiers by asking why it was that a vessel of water weighed precisely the same when a two-pound fish was put into it as it did before. The savants set themselves to

give reasons, until one of the Court who did not lay claim to that title thought he would weigh it, and then he found the king had only been "poking fun" at them all. A little weighing and waiting will do no harm now-a-days.—D., *Deal*.

#### VARIATION IN TOMATO FRUITS.

HAVING seen a plant of Vick's Criterion Tomato at Norris Green bearing both smooth and corrugated fruits, Mr. Cox (page 8) has arrived at the conclusion that "fruits can be gathered from the same plant and exhibited as distinct varieties without much fear of disqualification." This deduction I consider doubtful, but in other respects his remarks are correct, as nearly all the medium and large-sized varieties are given to "variations and peculiarities," and the stronger and better they are grown the more apparent will this be. Propagating by cuttings, as Mr. Bardney suggests, will not affect the true characteristics of the variety beyond the first few fruits. The first bunches of blooms, both on seedlings and plants raised from cuttings, are often partially lost owing to a check—by late potting, perhaps, in the first case, and the process of striking in the other—being given to their development. The most forward blooms, and on some varieties frequently the next two or three that follow, on each bunch, are invariably much the strongest, the pistils frequently being fasciated; and from these result the fruits objected to by so many. Remove these blooms and the others will be benefited thereby, though by no means can the fruits be induced to grow so large as the mis-shapen fruit.

Unless I am much mistaken the lowest fruits on Mr. Bardney's plant were set from the last few blooms on the bunch, and the plant, having been considerably strengthened by good culture, produced stronger successional bunches, which in their turn bore some larger and corrugated fruit. If all the fruits were corrugated Mr. Bardney is not growing the true variety. To stage these corrugated and smooth fruit as distinct varieties would show either inexperience or but a poor opinion of the qualifications of the judges, who are acquainted, or at all events ought to be, with the eccentricities of the Tomato. Trophy and Stamfordian, which differ but slightly, are prone to produce ill-formed and handsome fruits, but no experienced person would think of sending the two examples as distinct varieties to the Fruit Committee of the Royal Horticultural Society. The handsome fruits might certainly be staged as Improved Trophy; but this will not avail, and properly qualified judges ought to be as expert as the majority of that Committee. Disqualifying is a disagreeable necessity, and it is not wise to give the judges an opportunity for resorting to it.

In conclusion it must be understood that these remarks are written in no controversial spirit—quite the contrary; and are simply offered to set Mr. Cox right and others who may think as he does.—W. IGGULDEN.

#### PRUNING GOOSEBERRIES.

FROM my youth I have been told by gardeners that Gooseberry trees ought to have their centres cut out, and ought to be trained outwards, low down, to produce the best and heaviest crops. Some six years ago I was taken ill and so affected that I could not stoop sufficiently low to gather Gooseberries from low bushes, so I determined to try and induce the trees to grow higher. I obtained some strong hazel rods, to which I had the leading shoots tied of each alternate Gooseberry bush. Next season every tied shoot produced a crop of Gooseberries hanging on it as closely as a rope of Onions.

The result has astonished many of my friends who have seen the trees in bearing, and I am now training upwards all the intermediate trees, for I find the side shoots "follow the leader," and in two or three years the bush becomes pyramidal and gives a much heavier crop for the ground occupied than when grown on the usual system. My bushes are now 4 to 5 feet high, and if I had not trained them upwards I should have had to cut out or remove a great many of them.—G. O. S.

#### MEYENIAS.

ACANTHACEOUS plants are as well known in our stoves and greenhouses and as much admired as the members of several other large natural orders in the same division of the vegetable world, which contribute to the attractions of such structures and of borders also. It is only necessary to mention the names of *Apheandras*, *Justicias*, *Eranthemums*, *Libonias*, and *Thunbergias* in support of this observation, for they all include species of considerable general value, easily grown, and characterised by brightly coloured flowers. To these may be added the small genus *Meyenia*.

which, though less popular than the others, is only so from the merits of its species being less widely known. It is closely allied to *Thunbergia*. One of the species is especially near to it both in habit and structure, but the other two are distinguished by their shrubby non-climbing habit. It has already been stated that the cultural requirements of the *Meyenias* are few; and it may be added that if a light rich compost of fibrous loam, peat, leaf soil, and a small proportion of well-decayed manure be employed, carefully draining the pots, and growing the plants in a brisk moist stove temperature, very little difficulty will be experienced in obtaining vigorous specimens that will flower satisfactorily. A position well exposed to light, and yet sufficiently shaded in hot sunny weather to prevent the foliage being scorched or the colour of the flowers deteriorated, is beneficial, with abundant supplies of water to the roots and over the foliage while growth is active. The plants have sometimes a tendency to become rather



Fig. 6.—*Meyenia erecta*.

straggling without a little attention is given to pruning the too greatly extended or bare shoots, but this is a matter that is very easily accomplished. As regards increasing the stock cuttings are readily obtained, and, if judiciously selected, usually strike readily in an ordinary propagating frame. The moderately firm wood should be chosen, as the tender extremities of the shoots are rather liable to damp off.

A few descriptive notes will suffice to indicate the respective characters of the species, commencing with the one represented in fig. 6, namely—

*M. erecta*.—A handsome plant of shrubby habit, with dark green leaves and fine axillary trumpet-shaped flowers, the corollas of which have a pale yellow tube, a throat of deeper yellow, and a rich purple limb. As the name implies it is erect in habit and has none of the climbing tendency which characterises the last-named species. It is a native of western Africa, where it was found near Cape Coast Castle by Dr. Vogel, after whom one of the species is named. Seeds, it appears, were sent to this country about 1855, from which plants were raised in several establishments and thence distributed. It is a really useful plant, as flowers are produced nearly all through the year—a quality which distinguishes it from the other forms. One variety is known in cultivation named *M. erecta alba*, which has white flowers with a yellow tube, resembling the type in other respects.

*M. Vogeliana*.—A species from the island of Fernando Po, in the Gulf of Guinea, whence it was imported about twenty years ago. It is very nearly related to the preceding species, but has large.



flowers, bracts, and leaves. The corollas are of moderate size, the limb being a rich purple hue, the inner surface of the tube bright yellow, and the outer white. It flowers during the summer months, and when in good condition is extremely handsome.

*M. Hawtayneana*.—This is also known as a *Thunbergia*, which it resembles, and it is, moreover, widely geographically separated from the other two species, being a native of the western portion of Hindostan. It has been longer known in this country than the other, for it had been some years in cultivation when a coloured figure of it was published in "Paxton's Botanical Magazine" in 1839. Dr. Wallich had, it appears, sent plants from Calcutta to England, and they had been grown by Messrs. Rollisson, at Kew and several other gardens; but the first to flower is said to have been the one figured by Paxton, which was in the then celebrated collection of Mrs. Lawrence. The plant is climbing, with opposite oval leaves and axillary flowers, the corolla being a deep bluish purple with a yellow tube about 2 inches in length. It is equally as attractive as the two already noticed, and as easily grown.—L. C.

## ROYAL HORTICULTURAL SOCIETY.

JANUARY 11TH.

THE first meeting of the year was exceedingly well attended by the members of the two Committees; and though the exhibits were not proportionately numerous, there were sufficient to render the Council-room very bright, Orchids, Primulas, Camellias, and Cyclamens constituting the chief portion of the display.

**FRUIT COMMITTEE.**—Harry J. Veitch, Esq., F.L.S., in the chair. Messrs. Saltmarsh & Son of Chelmsford again sent their new Apple The Queen, and after another examination the Committee decided that it is quite distinct, and confirmed the first-class certificate which was awarded. Mr. Woodbridge, The Gardens, Syon, exhibited a new Banana, one of a collection of eight varieties imported from Brazil. It grows about 12 feet high. The fruit is short and thick, and excellent in flavour, and the Committee highly approved it as to flavour and quality. Mr. Woodbridge also exhibited a good specimen of Telegraph Cucumber, to which a vote of thanks was awarded. Mr. J. Clark, Sycamore Gardens, near Farnham, sent a dish of Orangefield Dwarf Tomato, to which a vote of thanks was awarded. Messrs. James Veitch & Son exhibited two pots of forced Seakale, one the Lily White, and the other the old kind. The Lily White has already been certificated, and the Committee confirmed their approval of it. A collection of twelve sorts of Parsnips, which were grown at Chiswick under the following distinct names—Maltese, Guernsey Half-long, Student (three times), Elcombe's Improved Hollow-crowned, Hollow-crowned Improved, New Maltese, and Elcombe's; all of which were identical with the exception of Student, which was more fleshy than the others. One sort called Round Early was quite distinct, being round with a short taproot like a Turnip-rooted Beet.

**FLORAL COMMITTEE.**—Dr. Denny in the chair. Messrs. J. Veitch and Sons, Chelsea, contributed a group of Orchids, comprising nineteen species and varieties of *Odontoglossum*, among which the following were admirably shown:—*O. Alexandræ* was represented by a variety with very large pure white flowers, the lip stained with yellow and spotted with brown; *O. triumphans* very fine, richly coloured; *O. Andersonianum*, *O. pulchellum* with its spikes of small white flowers; *O. gloriosum*, *O. Pescatorei*, *O. nevadense*, *O. prænitenis*, *O. blandum*, *O. maculatum*, *O. anceps*, *O. tripudians*, *O. Roezlii* and var. *alba*, *O. Rossii majus*, *O. hystrix*, *O. Chestertonii*, *O. Coradinei*, and *O. crocidipterum*. In addition small plants of *Sophranites grandiflora* were flowering well and brightly. The dwarf *Leptotes bicolor* had numerous small flowers with a purple-stained lip, and *Oncidium auriferum* had a panicle of yellow flowers something like *O. cheuophorum*. The charming hybrid *Dendrobium endocharis* had about ten growths, each bearing a dozen white flowers, the plant not exceeding 9 to 10 inches in height. A vote of thanks was accorded for a plant of *Billbergia nutans*, with pendulous spikes of the peculiarly formed flowers marking the genus. A group of *Cyclamens* was exhibited, all the plants being extremely vigorous and well flowered, the whites pure and crimsons rich. The firm also staged a collection of small Conifers, *Retinosporas*, *Thuja*s, &c., showing the character of several handsome varieties. The *Retinosporas* were especially notable for their excellent colour. For all these collections a silver Banksian medal was deservedly awarded.

Mr. B. S. Williams, Upper Holloway, sent a collection of plants, chiefly Orchids, in very good condition. *Saccolabium giganteum* was particularly fine, two specimens bearing half a dozen spikes each. In one the rosy colour of the lip was particularly well marked, the sepals and petals being pure white. *Calanthe Veitchii* had three handsome spikes of flowers. *Dendrobium heterocarpum* had several fine flowers with pale yellow sepals and petals, the lip marked with rich brown. *Masdevallia tovarensis*, the pretty white-flowered species, was in excellent condition, and the diminutive *Masdevallia Wagneriana* was also shown. A silver Banksian medal was awarded. From the Society's gardens, Chiswick, a large collection of double Primulas was exhibited, comprising many particularly beautiful forms. Blushing Beauty (Henderson), white faintly suffused with pink, and King

of Purples (Henderson), rosy purple, were noteworthy for the good size and form of the flowers. Gilbert's Mrs. Barron is also a handsome variety with large white double flowers profusely borne. Mr. George, gardener to Miss Nicholson, Putney Heath, was accorded a vote of thanks for a collection of *Abutilon* flowers of excellent form and rich colours. Mr. H. Boller, Kensal New Town, was similarly honoured for a collection of diminutive succulent plants. Messrs. W. Paul & Son, Waltham Cross, Herts, exhibited nine boxes of *Camellia* blooms in remarkably fine condition. The varieties chiefly represented were the old and beautiful *alba plena*, *imbricata*, *Halleyi*, *Marchioness of Exeter*, *Jeffersoni*, *conspicua*, *Eclipse*, and *Montironi*. Other varieties were shown, but in smaller numbers; of these the most notable were *Princess Charlotte*, *Linda Rosazza* good in form, *Aulica*, and *Reine des Fleurs*. A box of Tea Roses was also shown, comprising neat buds of *Safrano*, *Madame Falcot*, *Niphetos*, and *Isabella Sprunt*. A silver Banksian medal was awarded.

Mr. H. Cannell, Swanley, Kent, staged cut blooms of some Zonal *Pelargoniums* of extraordinary merit. They included the following:—*Olive Carr*, pink, very large, and of good form; *J. B. Miller*, brilliant scarlet, enormous size, petals very broad and excellent form; *Aida*, white tinged with pink, very distinct and delicate; *Colonel Seely*, very deep rich scarlet, fine form; *Romeo*, rich scarlet, large; *Dr. Denny*, a most distinct variety, warm purplish tinge; *Mrs. Strutt*, pale pink, large flowers; and *Mrs. Moore*, scarlet centre and white petals, all handsome. Primulas were also well shown, *Lilacina*, *Swanley Red* and *Swanley Purple*, being in admirable condition.

First-class certificates were awarded for the following plants:—

*Carnation Andalusia*.—Mr. Hill, gardener to Sir N. de Rothschild, Tring Park, Herts, obtained a certificate for this variety as a decorative plant. It is one of the tree section with pale yellow flowers very full, of good size and form, the petals elegantly fringed. It appears to be of free growth and profuse in flowering.

*Vanda lamellata Boxallii*.—Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, was awarded a first-class certificate for this variety, which has small flowers, the three upper divisions of the perianth being white, the lower streaked with rich brown, and the small lip bright rosy purple.

*Pelargonium Eureka* (Cannell).—A pure white Zonal variety. Flowers of good form, originally exhibited under the name of I've Got It; very good in habit, robust, and free in flowering. A handsome variety, and one of the best whites in cultivation.

**SCIENTIFIC COMMITTEE.**—Mr. Boulger exhibited and described a series of models of carnivorous plants made by R. Brendel of Berlin, and under the direction of Professor Cohen, admirably adapted for class purposes. Some discussion followed on the nature of the pepsine and peptones discovered in plants, in which Professor Church and Dr. Gilbert took part; the former observing that peptones are found in Lupin seeds and not as the result of a ferment, Dr. Gilbert observing that such was the result of defective ripening. Dr. Masters exhibited a specimen of Twitch, *Triticum repens*, which had penetrated through a Potato.

*Chinese Passion Fruit*.—An orange Solanaceous fruit sold in the markets under the above name, is fruit of a species of *Cyphomandra* (*Solanum betaceum*). Mr. Noble of Bagshot, forwarded a plant of *Abies lasiocarpa* grafted on a Silver Fir, which being in a diseased state had produced a large cork-like knob at the point of union.

**LECTURE.**—The Rev. G. Henslow commenced his lecture by describing the methods by which *Cyclamen* buries its pods, as detailed by Mr. Darwin in his new work on the movements of plants, and observed that it afforded a hint to horticulturists to supply the growing fruit pods with nutritious matter which could be absorbed by them. He also described the burying of the fruit of *Trifolium subterraneum*, which exhibited "aggregation" of the protoplasm in the cells of the hairs of the calyx, implying a power of absorbing nutritious matter, and confirming the remark he made in last lecture on a similar absorptive power discovered by Dr. Masters in the nectaries of the Hellebore, that probably all plants can absorb nitrogenous matter if presented to their surfaces in a suitable manner, and possibly this would prove to be one if not a chief use of plants being so often hairy when growing in dry localities. The lecturer also described the circumnutating process of hypocotyls when the germinating seedlings are issuing from the ground.

Collections of single and double *Primula sinensis* furnished the substance of remarks on intercrossing of flowers illustrating heterostylism, while some cut flowers of *Abutilon* were remarkable for their strong proterandry, a phenomenon also shown by *Pelargoniums*. These peculiarities, however, were not absolute but relative, inasmuch as *P. sinensis* is very liable to become homostyled in having the pistil of the same length as the stamens, while *Pelargonium* may so shorten the time between the maturation of the stamens and pistil as to render the flowers self-fertilising. Mr. Darwin mentions the curious fact, that while of most other Primulas the short-styled form is most self-fertile, in *P. sinensis* it is the long-styled form, and this is perhaps attributable to the fact that the corolla on falling off drags the anthers over the stigma and so secures fertilisation. A group of Cactaceæ and succulent Euphorbiaceæ illustrated representative plants, the quaint forms of the former of Mexico being exactly paralleled by those of Euphorbia in Africa, though the structure of the flowers showed they had nothing else in common than their general physiognomy.

As a further illustration of this fact, the lecturer described with the aid of diagrams the strong proterandry of *Malva sylvestris*, and the self-fertilising method of *M. rotundifolia*, both, as well as *Abutilon*, being of one family—the *Malvaceæ*. The double-flowered *Primulas* supplied material for a few remarks on the different methods of doubling, such as conversion of carpels and stamens into petals, and their multiplication; or by the development of an extra corolla called catacorolla, or by conversion of stamens only into petals, as occurred in the double Cherry; or carpels only, the stamens remaining normal, as in *Anemone*, &c.

A collection of *Camellias*, which botanists now regard as identical with the genus *Thea*, suggested that the leaves should be roasted and a decoction made from them to see if a palatable tea could be yielded by them; for it is said the common Holly is used as tea by the peasants in the Black Forest, and there is another species of *Ilex* of which *Ilex paraguayensis* is a second. This latter furnishes the Paraguay tea of South America.

### VEGETABLES NEW AND OLD.

THE year 1880 will be remembered by many on account of the unusual abundance of vegetables. To all but the growers for the markets this remembrance will be an agreeable one, as private gardeners and others have not for some years obtained such an abundant return for their many weeks of intelligent care and labour. Unfortunately to market growers over-abundance generally means a profitless season, as they cannot afford to grow vegetables for sheep-feeding, to which use immense quantities of some kinds have necessarily been applied during the past season. Private gardeners have not much to complain of generally, though many doubtless lost the greater part of their Potatoes by disease. Others have had their Celery much weakened by the larvæ of the Celery fly, and still more have good reason to lament the disfigurement of their Carrots by the maggot. On the whole, however, failures were few, and should there be no severe frosts this winter those vegetables in season will be abundant and good.

Brussels Sprouts have apparently been planted, both in private and market gardens, in much greater numbers than heretofore. This is as it should be, as there is not a more reliable or more profitable crop grown. In 1879 we read many complaints of the failure of Brussels Sprouts to "button." Several reasons were given for this; some suggesting that late sowing and planting, and others that faulty stocks of seed, were the primary cause of failure. To a certain extent both may have been correct in the respective cases, as there is no doubt that if heavy crops are required early sowing and early planting must be practised, and it is equally certain there are some superior stocks of seed. At the same time I am inclined to think the true cause of failure lay in the preparation of the soil and planting. Planting thickly and in a rather loose rich soil almost invariably encourage excessive growth, and the reverse of what should be aimed at. I took a lesson from the market growers, and raise the plants as sturdily as possible, plant early on firm moderately rich ground, placing the rows 3 feet apart and the plants 2 feet asunder in the rows, and invariably secure good crops. I was at one time under the impression that cultivation alone affected the heavy or light cropping habits of the Sprouts, but find that the Aigburth Sprouts are undoubtedly superior to any I have tried.

Cauliflowers during the past season were particularly good, though at times much infested with caterpillars. I grew three "extra earlies," and as they were apparently identical shall merely recommend that an extra early be grown in every garden. They may be planted thickly, say 15 inches apart each way. I never allow more than 18 inches each way for the largest varieties of Cauliflowers, and cannot understand others giving more room when many more smaller and appreciable heads can be had from a given space. Dean's Snowball is one of the best Cauliflowers I have grown; it is very compact in growth, the heads of medium size and very close, and it can be had good up to July and August. The Dwarf Erfurt Mammoth is still worthy of a place in every garden. Carter's Mont Blanc follows this, and still later Suttons' King of the Cauliflowers comes into use. Both are valuable also for the autumn supply. I find Dicksons' Eclipse a good early autumn variety; but the stock is scarcely fixed, as my batch of plants included at least two distinct varieties, one resembling a good Walcheren Cauliflower, and the other Veitch's Autumn Giant, though scarcely so well protected as that variety, but is rather earlier and will be grown on that account. The Autumn Giant was particularly good. Some that followed Potatoes and were planted in the second week in July on a south border have continued to yield a number of small heads up till now (January 5th), care being taken to closely cover the heads with the oldest leaves.

Broccoli in the open failed completely in many districts, even where allowed abundance of room. Veitch's Autumn Broccoli,

although scarcely so good as I read of others having it, produced a number of small useful heads; as also did Snow's Winter White. Both require protection during a severe winter. At the present time I have both very good in the open. Osborn's Winter White is my ideal of a good Broccoli, being dwarf and close-growing, therefore hardy; heads medium size, white, and well protected. It is fit for use early in February or later according to the season. I had no novelties for trial, and have only to state that I find Knight's Protecting, Leamington, Cattell's Eclipse, and Suttons' May Queen excellent varieties, which come into use in the order named.

Of Cabbages I find Hill's Dwarf Incomparable (Osborn & Sons) to be most profitable; it is compact in growth—indeed they only require 15 inches each way—and the conical heads are of good size and quality. Carter's Heartwell is the best of the larger varieties. Rosette Coleworts are now very useful and good. Savoys came in too early, and were of less value accordingly. I consider Little Pixie, Early Ulm, and Drumhead a good selection.

Celery has been particularly good this season, the only exception being the earliest sown, nearly the whole of which decayed at the hearts in an unaccountable manner. They were raised in heat (not fire heat), pricked out on a slight hotbed, and gradually grown into sturdy plants. They grew well in the trenches, were never to the best of my knowledge dry at the roots, and were carefully earthed up. When examined early in September prior to lifting for use what should have been good Celery was worthless. The variety grown was Williams' Matchless Red, which in previous seasons has proved exceptionally good. Later sowing of this, Carter's Incomparable Crimson, Major Clarke's Solid Red, and Leicester Red have all turned out most satisfactorily. The two latter differ but slightly, and I have no preference for either of them. We generally sow the principal part of our Celery seed, and also Celeriac or Turnip-rooted Celery, thinly over a large shallow hotbed, thinning out the seedlings where crowded, and transplanting direct into the trenches as the selected ground is cleared of Cabbages. We plant the Celeriac on well-manured ground which was previously occupied by the second early Cauliflowers. They are planted on the level, allowing the plants 15 inches apart each way, and are watered during very dry weather. The roots that follow are rather larger than cricket balls, and are much appreciated during the winter.

Beet had a tendency to coarseness. Fortunately the greater part of our seed was sown late (May 5th), and we therefore secured enough of the requisite medium-sized roots. Osborn's Select (Dell's Crimson) was good in every respect. The Turnip-rooted Beet was much the earliest, and was unusually good in colour. I do not store any of this, but it saves the main crop and deserves to be generally grown. Carrots, as before stated, were very maggoty, wood ashes apparently failing to act as a preventive. The Nantes Horn, James' Intermediate, and Altringham form a good selection.

Turnips have been very plentiful and good. With us the Purple-topped Munich was ready for use some days before any other variety, and is for that reason valuable. It was inferior in quality to Suttons' Snowball and Carter's Jersey Lily, both of which are excellent early varieties, and also suitable for autumn sowing. Carter's Golden Rose is, I find, good for autumn sowing; the flesh is orange yellow in colour and of excellent quality. Mitchellson's Market Jew, kindly sent to me by Mr. W. Roberts, is a large quick-growing variety, in some respects resembling the Green Round. The flesh is pale yellow in colour and of good quality, and the variety is much liked, I am informed, by the Cornish market growers. The Jews have a partiality for yellow Turnips, and great quantities are sent from this district to the Spitalfields market for them.

Peas were both abundant and good, but they grew to a greater height than usual, and we found it necessary in some instances to top them, as the pods filled badly. Harbinger was ready for use a week before William I., was of good quality, cropped heavily, and from near the ground. It attained 4 feet in height, while William I. reached 5 feet. The latter was very profitable, and will be sown again with Harbinger. The second sowing of these varieties was closely followed by Culverwell's Telegraph and Carter's Telephone, both varieties cropping heavily, the pods being large and well filled with peas of excellent flavour. The succession was maintained by Carter's Pride of the Market and Stratagem, which may be described as good dwarf forms of Telegraph and Telephone respectively. A great favourite of mine—Huntingdonian—fully sustained its reputation as a good tall second early variety, and the same remarks apply to Carter's Little Wonder as a dwarf variety. Neither Dr. McLean nor Sharpe's Invincible did well on our rather cold soil, but some of the latter I gave to a friend for a light soil succeeded admirably.



Webb's Triumph, described as a 4-foot Pea, grew 7 feet in height, but did not prove very profitable. On some soils it may be found a good main-crop variety. Laxton's Marvel succeeded admirably, cropping heavily, the long pods being closely filled with very sweet peas. A still finer Pea is Laxton's John Bull, and both this and Marvel are suitable for the main crop, especially where medium-height varieties only are grown. I cannot speak in favour of Laxton's Baron. It grew luxuriantly and cropped heavily, but the very large pods filled badly. Suttons' Duchess of Edinburgh is a very profitable tall Pea suitable for main crop. It is one of the best-flavoured Peas grown. I find Veitch's Perfection and Ne Plus Ultra two good varieties for the latest supply.

Of Broad Beans we grow but few. Early Longpod and Hardy's Pedigree Windsor are two profitable varieties, and for exhibition purposes none are equal to Carter's Leviathan.

Kidney Beans were very productive, none more so than Osborn's Forcing, which is still the best early variety. I found it advisable to stake Canadian Wonder, and was rewarded with an abundance of very long tender pods. Monster Negro cropped well in frames and in the open, but I failed to discover in it any very marked improvement on the old Negro Longpod. Carter's Advancer was again very productive and good. Runner Beans produced extra heavy crops. The Scarlet Champion and Giant White were grown. Parsnips, owing to the wet season, were much cankered. The Student is my favourite.

Onions were inclined to be "bull-necked," but they give promise of keeping well. The White Naples or the Early White Italian are particularly good for autumn sowing, as they bulb early the following spring and their mild flavour is much liked. The Trebons and Giant Rocca are also suitable for autumn-sowing, as if well ripened they will keep till midwinter. For summer sowing I like the Improved Banbury, good substitutes being the Improved Reading, Pinesfield Improved White Spanish. James's Keeping and the Brown Globe are the best keepers. I find the Round or Summer Spinach quite as hardy as the Prickly or Winter, and this autumn the seed of it germinated more freely.

Tomatoes cropped very heavily, but many of the fruit was diseased. Some of the most profitable were Early Gem, Earley's Defiance, Acme, Conqueror, Vick's Criterion, and Vilmorin's Early Dwarf. Remarks on Potatoes must be deferred.—W. IGGULDEN.

## NOTES AND GLEANINGS.

At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, Sir Trevor Lawrence, Bart., M.P., in the chair, the following candidates were duly elected Fellows of the Society—viz., Lady Lavinia Bertie, Mrs. Bret-Ince, A. Crowfoot, Wolf Harris, Mrs. Miller, Mrs. Frank Morris, Mrs. Edward William O'Brien, Mrs. John Park, Arthur Pease, M.P., J. P. Pike, J. Rattle, Mrs. Sheepshanks, Rev. — Howard, and A. Watson; George Duffield, and Mrs. Rubens, were elected Guinea Members.

— SNOW FELL IN LONDON on Tuesday night to the depth of about 2 inches—the greatest fall in the metropolis during the present winter.

— THE following are the names of the gentlemen elected to serve on the COMMITTEES OF THE ROYAL HORTICULTURAL SOCIETY for the present year, in the place of some retiring members:—*Scientific Committee*—John Ball, F.R.S., G. S. Boulger, W. Carruthers, H. J. Elwes, F.L.S., F.Z.S., F. P. Pascoe, F.L.S., and Sir W. C. Strickland, Bart. *Fruit Committee*—J. Burnett, F. Campion, John Lane, Major F. Mason, T. Francis Rivers, Sir C. W. Strickland, Bart., and Jesse Willard. *Floral Committee*—John Burley, G. Duffield, Henry Eekford, Andrew Henderson, Maxwell T. Masters, M.D., F.R.S., Robert Parker, and J. Roberts.

— WE regret to announce that A FIRE BROKE OUT AT THE FULHAM NURSERIES of Messrs. Osborn & Sons about 11 o'clock in a packing shed which contained a quantity of dry hay, straw,

&c. The shed was partially destroyed and all that it contained. Fortunately there was not much in at the time for packing. The fire was subdued before reaching the office and seed shop adjoining, but in the meantime the mob which had collected dragged out bags of seed and anything they could lay hands on. The consequence was a quantity of seed was lost, as many bags were open at the mouth, and many were split open from rough usage. Many other sundries connected with the seed business were also lost or broken. The plants in the adjoining greenhouse also suffered to some extent. Had the wind been blowing from a southerly direction the whole of the buildings must have been destroyed. The cause of the fire is unknown. We are pleased to learn that it will not interfere with the general routine of business, but the execution of seed orders will necessarily be delayed about a week.

— AT a meeting of the ROYAL BOTANIC SOCIETY, Regent's Park, held on Saturday, Mr. Beresford Hope, M.P., in the chair, a long list of donations of plants, seeds, &c., received since the last meeting was read, including seeds of African Copal from Zanzibar, and of the Talipot Palm from Ceylon.

— MR. R. INGLIS sends the following note—"The total RAINFALL during 1880 at BORDER HILL (Mid-Sussex), was 36.16 inches. Only 10.21 inches fell during the first six months. The driest month was May, and the wettest month October, 0.37 inch in the former, and the unusual large quantity of 8.24 inches in the latter. Rain fell on 152 days. The autumn has been remarkably fine and open. The mercury fell below freezing on three occasions in October, twelve in November, and seven in December, mostly slight frosts, the lowest being 23° Fahr. on November 17th."

— WE had last week to inform our readers of the death of a noted horticulturist, and we have now the same unpleasant duty to perform. Mr. CHARLES EDMONDS, who is so well known for his long period of service as gardener at Chiswick House, died in the commencement of his seventieth year on the 30th ult., at Llandudno. The deceased was for many years one of the Council of the Royal Horticultural Society, and frequently officiated as judge at metropolitan exhibitions.

— WE have received the schedule of the SUTTON COLD-FIELD ROSE EXHIBITION, which contains seven sections and twenty-three classes. Twelve prizes are offered in the nurserymen's classes, ranging in amounts from £5 to 10s. In the amateurs' classes silver cups are offered for thirty-six and twenty-four blooms, distinct. Four and five prizes are provided in the local amateurs' classes, and special prizes are offered by J. McLeland, Esq., Messrs. Cranston & Co., and Mr. George Paul. The Exhibition is to be held on July 22nd, in the grounds of the Crystal Palace Company, which are close to the stations of the Midland and London and North Western Railway. The Rev. J. A. Williams, Yardley Wood Vicarage, near Birmingham, is the Honorary Secretary of the Rose Show, to whom all communications and entries should be addressed.

— THE annual general meeting of the METEOROLOGICAL SOCIETY will be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst., at 7 P.M., when the Report of the Council will be read, the election of Officers and Council for the ensuing year will take place, and the President will deliver his address.

— WE are informed that the MEXICAN POTATO, which is a variety cultivated by Capt. Mayne Reid of Frogmore House, Ross, Herefordshire, raised by him from seed obtained from Mexico, and is said to be unaffected by the disease, has passed into the hands of Messrs. J. Cheal & Sons, Crawley, Sussex. We gave

some time since a description of the variety in the words of the raiser.

— WE have previously referred to the enormous importations of American Apples, and it appears that the APPLE TRADE IN CANADA is annually assuming greater proportions, which may be gleaned from the fact that up to the 13th ult. 126,633 barrels had been shipped from the port of Montreal alone to this country. This number exceeds last year's exports for the same period by 76,849 barrels, besides heavy shipments *via* Boston and New York.

— THE weather is now very WINTERLY NEAR LIVERPOOL; sharp frosts have prevailed since Thursday last, varying from 8° to 14° below freezing. The trees are densely covered with white rime, and look most beautiful. The sun has not made its appearance during these days of frost, and forcing operations have to be conducted with much care.

— REFERRING to Pettigrew's CARDIFF CASTLE CUCUMBER "AMATEUR" writes—"In several trade catalogues I find a Cucumber bearing this name offered as being 'one of the best in cultivation.' As it is new to me, I should be glad to know what are its chief recommendations, and in what way it differs from Telegraph or any other well-known leading kind? Is it a distinct cross, or is it only one of our old varieties under another name?"

— WE learn that Her Majesty's Office of Works has entrusted Mr. Anthony Waterer of Knap Hill Nursery, Woking, with the providing and planting of a large number of RHODODENDRONS AND AZALEAS IN HYDE PARK during the approaching season. The plants are well set with bloom buds, and with fair weather it is believed they will make a fine display in Rotten Row.

— ON the 8th inst. the Rev. H. H. Higgins of Rainhill delivered an excellent LECTURE ON THE CULTIVATION OF MOSSES to the members of the Liverpool Horticultural Association. The lecturer treated largely upon native as well as many tropical species, and illustrated with diagrams many different varieties, minutely explaining their botanical construction. Mr. Higgins is well acquainted with Mosses, and at one time cultivated about 220 forms, each grown in a separate pot and grouped in a large Wardian case. The lecture was much appreciated by the members of the Association. Mr. Bardney also read a paper on "Hybrid Perpetual Roses in Pots," principally for forcing. The meeting terminated with the usual vote of thanks to Messrs. Higgins and Bardney, also to Mr. Halhead, the Chairman of the meeting.

— As will be seen by an advertisement in another page, it has been proposed to raise a GARDENERS' MEMORIAL TO THE LATE MR. ARTHUR VEITCH. It is intended, if sufficient subscriptions can be obtained, to institute a fund for the Gardeners' Benevolent Institution, to be called the Veitch Memorial Fund. No doubt the general respect entertained for the deceased gentleman will induce many gardeners and others to give substantial support to this excellent proposition.

— "W. J. M." writes respecting HOLLY BERRIES IN IRELAND—"I can confirm the truth of Mr. Campbell's observation as to the scarcity of Holly berries so far as this locality is concerned, and my correspondents in other districts invariably say the same. This scarcity is not confined to Holly; Arbutuses, Aucubas, Kalmias, Cotoneasters, and Pernettyas, where grown outside in sheltered situations, are equally deficient. The absence of berries and the lingering growths of the more tender shrubs I believe must be credited to the terribly severe check sustained from the winter of 1878."

— WE are requested to call the attention of our readers to

the sad circumstances attending the death of the late THOMAS TUCKER, foreman packer, for eighteen years in the employ of James Carter & Co. By his sudden death his widow with a family of six children are left utterly unprovided for. A few friends and fellow workers have subscribed a fund for temporary purposes, and a Committee has been formed to receive subscriptions from anyone desirous of helping the family. Contributions will be thankfully acknowledged by any of the following members of the Committee, and should be addressed to them care of Messrs. James & Co., High Holborn:—A. H. Dunnett (Hon. Treasurer), C. H. Sharman (Hon. Sec.), W. G. Sharman, A. Ainsworth, W. H. Hayward, W. F. Cuming, J. Comont, H. Ingrey.—Old "Show" hands will remember Tucker.

— WE are glad to learn, says *Nature*, that Prof. MacOwan, late of Gill College, Somerset East, has accepted the post of Director of the Botanic Garden, Cape Town. He will also lecture at the South African College. The appointment of a man whose long and enthusiastic devotion to South African botany has earned him a wide reputation is to the credit of the Cape Government, and is of good omen for the scientific future of the Cape Botanic Garden. This has never yet attained the position which it would naturally derive from the resources of one of the most interesting floras in the world.

#### FORWARDING EARLY PEAS.

PEAS cannot be had too early, and various means are adopted for advancing the crop. November-sown Peas sometimes come in the earliest, and in other cases they are behind those sown in spring. If outdoor culture is exclusively followed the autumn-sown Peas might be the first in most instances, but if a little extra attention be given to spring-sown Peas they will be the most satisfactory. I think it would astonish many if it was only known the quantity of seed that is lost through various causes by November sowing, and the patchy rows we often see in spring promise anything but a full and abundant crop. Mice and other vermin are more destructive on these than those sown at any other time, and it is generally before the growths come through the soil that the injury is done. From this it may be inferred that if early Peas were sown under protection, and planted out after they had grown a few inches, losses or blank rows would be nearly unknown. This is my opinion, and of all ways of forwarding early Peas I think there is none better than sowing the seed under cover and planting out.

I have tried many ways of raising young Pea plants—such as sowing them in turves, in tiles, old waterspouts, boxes, &c., but I never found them do so well as in small 3-inch pots. Sowings made in two or three hundred of these supply plants to make several fine rows. No drainage is put in the pots, but a little rough manure is placed at the bottom of each, and then rich soil is rammed firmly over this until the pot is about three parts full, when from eight to twelve peas are placed in each and covered with a little more of the soil. They are then placed close together in a cold frame or cool house, and no water is given until the growths are seen. These soon appear, and water is supplied afterwards as it may be required. They are placed as near the glass as possible, but never in forcing heat, as this would weaken the growths and entail labour in having them "bordered off," besides running great risk of giving them a severe check while undergoing the operation. Air is admitted on all favourable occasions until they are large enough and the weather permits their being planted out.

When the time comes for this the pots are well filled with healthy roots, and planting is done without injuring a leaf or root. All our best spring and early summer Peas were raised in this way last year, and I never had better. The labour required is inconsiderable compared with the advantages. In planting we do not place the potfulls as close together as they will stand in, but each little tuft is planted about 6 inches from the other. Before they come into fruit they look as if they were or had been originally packed in close together. If a little old potting soil can be placed against the roots at planting time it assists them in growing. The stakes are placed into them at once, and if the situation is bleak or the weather cold a few Fir branches or Laurel trimmings are put in here and there for shelter.

With valuable Peas it is a bad plan to trust the seed in the ground early in the season, as from various causes many may fail,

but if the plants are raised in pots all dangers of the kind cease. In fact all our new Peas are raised in this way whether they are wanted in spring, summer, or autumn, as many of them can only be had in small quantities.—A KITCHEN GARDENER.

### THE QUEEN APPLE.

THIS very fine new culinary Apple is referred to in our report of the Fruit Committee on page 26. The fruit is medium-sized; oblate, even, and regular in its outline, and ribbed round the eye. Skin clear lemon colour, almost entirely covered with bright crimson, which is again marked with broken streaks and patches of dark crimson, and with a lining of russet in the stalk cavity. Eye half open, with long erect slightly divergent segments, set in a deep and ribbed basin; tube short conical; stamens median. Stalk nearly three-quarters of an inch long, deeply inserted in

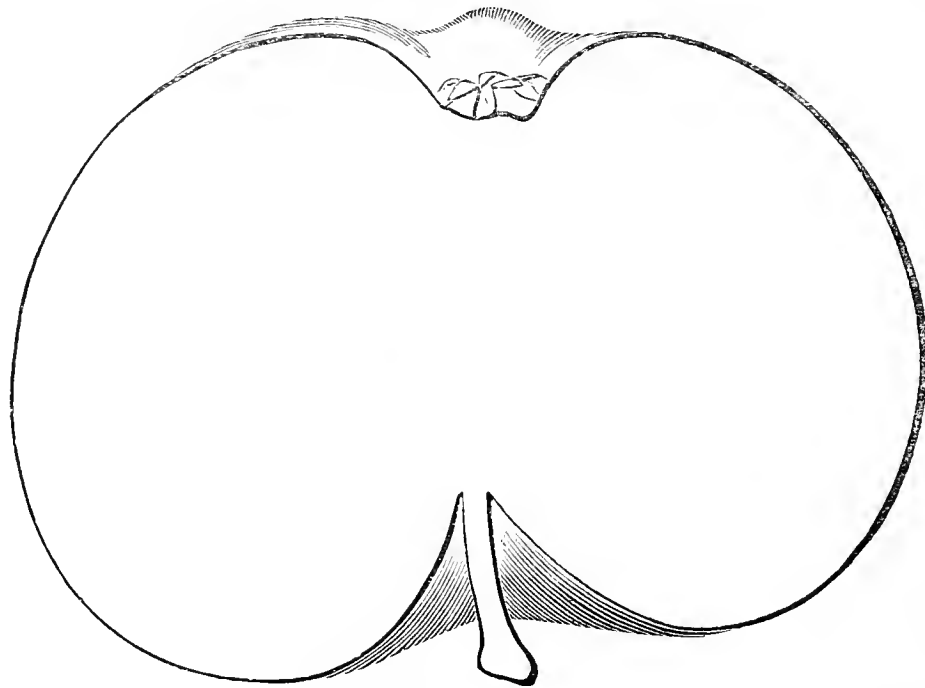


Fig. 7.—Apple The Queen.

a wide and deep cavity lined with russet. Flesh white, tender, very juicy, with a mild acidity. Cells of the core open.

A fine culinary Apple, in use from October to January. Very handsome.

This received a first-class certificate from the Royal Horticultural Society, November 16th, 1880. The seedling was raised twenty-two years ago, with three others growing beside it, from the pips of one Apple, but the parentage is unknown, as the Apple was purchased in the market. It first bore fruit about the time of the famous Tichborne trial, and was originally called The Claimant. It is larger, handsomer, a better keeper, and more productive than Cox's Pomona.

### SELECTION OF VEGETABLES.

IN reply to Mr. Brotherston on page 5, I can hardly say what proportion of the Peas named should be sown, unless I knew what demand there was for Peas at any particular time; but as the seasons of all are stated, everyone can sow one or all to suit their circumstances. Supposing Peas were wanted throughout the season, I would sow one quart of William I. for an early crop; one quart of Stratagem, two quarts of Telephone, and two quarts of Telegraph for main crop; and one quart of Omega and one quart of Ne Plus Ultra for late supply. According to our thin and improved way of sowing, this quantity would make close upon 400 yards of Pea rows at the lowest calculation, and this length would yield an enormous quantity of Peas. In speaking of economy Mr. Brotherston must have been thinking of the price of the seed of some of these Peas, but that is nothing compared with their produce, which should be taken into consideration. I know that quarts could be had of some varieties at a less cost than pints could be bought of others; but, on the other hand, peeks of pods would not be had from the former to bushels from the latter. I have tried them all, and am as fond of economy as anyone, but I do not think there is much of this in buying an inferior packet of seed for 6d. if superior could be had for 1s.—J. MUIR.

HAVING for a length of time read your valuable Journal, not without benefit, I venture to ask a few questions relative

to the "trustworthy selection" of vegetables given by your correspondent Mr. Muir on page 592 of your last volume. Those that I would be glad to have further information about before depending upon them for a main crop are the following:—Is Giant White Runner Bean of a good green colour when cooked? Ought I to depend upon Shorthorn Carrot alone? May I sow Cabbage Lettuce—Wheeler's Tom Thumb—as the only source of salad for the season? having never grown it, I wish to ask if it is as good in flavour as a Cos variety? Is William I. a good main crop Pea? I have not grown the Green Gage Tomato; is it reliable when only one is grown? The vegetables named and the Custard Marrow are accorded the place of honour—that is, "first named," being those recommended where only one variety of a kind is wanted. A good selection of vegetables at the present time is of great assistance to a beginner, and I shall be grateful to Mr. Muir or to any other of your able correspondents who will advise me on the varieties indicated above as to their fitness for main crop purposes.—ALFRED PEACOCK.

### COTTAGE GARDENING.

"COTTAGE GARDENER" has always held an honourable position among the titles of the Journal, and there has hardly been a number without some hints of value for the owners of cottage gardens. Such hints are, however, not always apparent, as a prominent position is not often assigned them, and many of my village friends are not wont to bestow more than a passing glance upon the articles in which they are to be found, probably thinking very naturally that elaborate instructions upon the culture of any particular plant or crop can only be intended for the benefit of gardeners having special facilities for doing it. Glad should I be to find that I am mistaken in so thinking, and to know that the valuable cultural hints with which the pages of the Journal abound are intelligently read and applied to practice by all readers. However this may be, there can be no doubt that notes written for a special purpose are more calculated to receive particular attention from those to whom they are addressed than others of a general character, and therefore I have no hesitation in contributing hints for those having small gardens and desire to make the most of them. In our village we have a club—not the old-fashioned benefit society, which holds its monthly meetings at the village inn, but a decidedly modern institution, which aims to care for its members in health as well as in sickness by promoting social intercourse, and placing within their reach facilities for pleasant rational amusement and self-culture. Our reading-room and library is a pleasant comfortable apartment, very attractive on a winter's evening with its bright lamps, warm fire, and large central table bountifully laden with daily, monthly, and weekly periodicals and newspapers, among which I am glad to say the *Journal of Horticulture* is to be seen.

It was a pleasant surprise to me to find the Journal upon the table without any hint as to its purchase from myself, and the sight of it gave rise to the thought that, by its aid in such a place, much might be done to brighten the village gardens and to render them more productive of good fruit and vegetables. Such gardens are generally from a quarter to half an acre in extent, and afford sufficient space for much more than a Cabbage bed and Potato plot. A tolerably good succession of vegetables might be had as well as many a little luxury of fruit in its season if every foot of space were turned to best account. Hard work bestowed upon a man's own holding undoubtedly brings a very sweet reward, for nothing in life is half so good as what is gained by our own exertion in our own home and its surroundings. Old Will Hobbs once said to me, "There's naw'n got by hard work o'ny aching bones." But I felt certain he did not mean it, for he has a very snug cottage and a neat garden all his own, and all the result of downright hard work; and the garden, too, is not without its special attractions. I do not mean the pigstye that stands well away from the cottage, and which is never long without an occupant; but that Rose bush that has its hundreds of blooms every summer, and is so beautiful that I have more than once gone in to see it and discuss its charms with dame Hobbs; and the Lilac, which I was able to tell her surpassed every one of ours at The Hall last season. Then, too, there is a bush of Rosemary, another of Southernwood, and, greatest treasure of all, a large tuft of double blue Violets.

To this very limited list of sweet things I propose to make some additions in subsequent notes; but no new plants will ever be regarded as these are, for they were there when the sons and daughters, now out in the world, played around them, and they



are as dear to them as the old home itself, of which they are regarded as part and parcel.—EDWARD LUCKHURST.

#### GARDENIA CITRIODORA.

A NATIVE of Natal, this deliciously fragrant white-flowering evergreen shrub does not require a high temperature, thriving excellently in an intermediate temperature or cool stove. The foliage is a bright deep green, the leaves longer and broader than *G. florida*. The fine Jasmine-like flowers are produced from the

axils of the leaves of the last year's growth in a branched peduncle of several flowers, white, and having a delightful Orange-blossom-like fragrance, hence their value when mounted for bouquets. A plant in flower is sure to awaken interest and attract attention by its agreeable perfume. Flowering naturally at the dull season, usually in December or January, it is a welcome addition to our list.

It is very easy of culture. Not being a cross-rooting plant it must not be overpotted and when at rest overwatered, or the flower buds will drop; indeed, at no time must a sodden condition of the soil



Fig. 8.—GARDENIA CITRIODORA.

exist, or the plants will suffer. Any pruning—*i.e.*, shortening of irregular growths, should be performed after flowering; and when the plants have started fresh growth repot, merely removing the old soil, disturbing the roots as little as possible, draining efficiently, and employing a compost of turfy loam with a little leaf soil or thoroughly decayed manure. Syringe overhead daily during growth, watering copiously, affording a light position to solidify the growth. Strong shoots often spring from the base. Stop them when a few inches high, or they will so appropriate the sap as to cause the old growths to die. The other growths must not be stopped as the stronger they are the more profuse

and finer are the flowers. The accompanying spray, of which I have grown many such, indicates the attractive character of this *Gardenia*.—G. ABBEY.

#### DEATH OF MR. JOHN SPENCER.

It is with unfeigned regret that we have to announce the death of a distinguished horticulturist, an accomplished man, and a public benefactor, in the person of Mr. John Spencer of Buck Hill House, Calne. Mr. Spencer was best known in the horticultural world as "Mr. Spencer of Bowood," for it was there as

gardener to the Marquis of Lansdowne that he made his mark in the pursuit which he so much adorned.

It is near upon fifty years since Mr. Spencer went to Bowood as gardener to the grandfather of the present Marquis, and up to the year 1860, when he resigned this appointment to take the more responsible position of steward of the Bowood estates, the services he rendered to horticulture are recorded in almost every horticultural periodical and work of the period, and as a recognition of his merits in this respect he was early elected a corresponding member of the Horticultural Society of London, to the *Journal* of which he contributed several useful papers, and of the Council of which he was for several years a member, when it extended its work to South Kensington. In 1862 he became associated with his friend, Dr. Robert Hogg, in the proprietorship of "The Florist," which had been previously conducted by Mr. Edward Beck and Mr. Charles Turner; and now it was issued in a new series under the designation of "The Florist and Pomologist," on account of the greater prominence given to fruit in the new series. As his duties in connection with the Bowood estates and his public engagements required his attention, Mr. Spencer was obliged after a time to relinquish his literary connection with the gardening press, though from time to time he continued an occasional contributor to the pages of this *Journal*.

In 1854, in conjunction with Dr. Hogg, Mr. Spencer was instrumental in forming the British Pomological Society, and along with him was for several years joint honorary secretary. There was no important horticultural movement at that time with which Mr. Spencer was not associated; and there was none, the success of which was not nourished by his presence and influence. Like his old friend, Sir Joseph Paxton, he was a great power in horticulture, and not in horticulture alone, but in every social movement which required sound judgment and deliberate persistent action with which he was invited to co-operate.

It was not, however, in horticulture alone that Mr. Spencer was proficient; other branches of science and of general knowledge had equally their attractions for him, and especially in geology he acquired a wide reputation. On this subject he was a frequent lecturer at the provincial institutes of the district, and there was perhaps no one who could speak with higher authority and had greater experience of the geology of the Oxford oolite and the Bagshot Sand, both of which were abundant in the district, than Mr. Spencer. No greater treat could be enjoyed than to have the privilege of a drive through the picturesque country in which he lived, and to listen to his pleasant talk and exposition of the formations over which we were travelling and by which we were surrounded. These were occasions which will always remain fresh and green in the memory of the writer.

It is impossible in a short notice like the present, which has been hurriedly prepared, to give anything like a perfect sketch of the career of this estimable man, and we will therefore merely mention some of the public offices he held, and which will show the high position he held in the esteem and confidence of the county and district in which he resided. Up to the time of his death, which took place on the morning of the 10th inst. a little after ten o'clock, he was Vice-Chairman for a great many years of the Calne Union, and Chairman of the Assessment Committee. He was also for some years one of the Directors of the North Wilts Bank, and subsequently, on the amalgamation of that with the Hampshire Bank, then styled the Hampshire and North Wilts Banking Company. This subsequently became the Capital and Counties Bank, and he retained his seat on that board as a Director to the end of last year, when he resigned consequent on his failing health. He was one of the oldest Free-masons in the province of Wilts, in which he had held every office, and was a Past Provincial Grand Senior Warden.

Mr. Spencer was born at Langley in Derbyshire, on the 27th of June, and was consequently in the seventy-second year of his age.

#### DEATH OF MR. WM. GORRIE OF EDINBURGH.

WE are sorry to have to announce the death of Mr. William Gorrie, President of the Botanical Society of Edinburgh. On the evening of Thursday last, the 6th inst., Mr. Gorrie was on his way home in the train from Edinburgh to Newhaven, and expired in the railway carriage of heart disease. Mr. Gorrie has been a prominent figure in Scottish horticulture for nearly fifty years. Trained by his father, the late Mr. Archibald Gorrie of Annat in Perthshire, he early exhibited those qualities which led him to take an important place in the world in after life. When yet a young man he entered the establishment of Messrs. Peter Lawson & Son of Edinburgh at the time when the late Mr. Charles Lawson originated the Agricultural Museum, which afterwards became the property of the Highland and Agricultural Society

of Scotland, and the care of the museum was entrusted to Mr. Gorrie, who for several years continued to be its curator. During this time he was also occupied in the preparation of the *Agriculturists' Manual*, published by Messrs. Lawson, and which was the joint production of Mr. Gorrie and Mr. Charles Lawson, the former getting the matter together, conducting the experiments in the experimental nursery at Meadowbank, and the latter giving a general supervision and advising on the technical parts of the work. For some years afterwards he acted as steward to the Earl of Stair at Oxenford Castle, where his attention was much occupied with the culture and crossing of Rhododendrons, and subsequently he returned to Edinburgh to take charge of the extensive nurseries of Messrs. Lawson. Of late years Mr. Gorrie has retired to comparatively private life, though still active in the pursuit of his love of plants and botanical studies. His little garden at Raitt Lodge, Trinity, was a Noah's ark of horticulture, where he delighted to spend, no matter how long, with friends who would enter into and appreciate his tastes, and his spare time was occupied in practising landscape gardening and garden designs.



#### HARDY FRUIT GARDEN.

THE favourable change in the weather will admit of pruning being completed. Apples and Pears grown as pyramids, bushes, or cordons should have attention, so that the borders can be cleaned and mulched with rich material. In pruning it should be remembered that some Apples and Pears produce their finest blossoms and fruit on the terminal points of the last year's growths; therefore pruning-in too closely should be avoided, except in the case of very gross shoots. If summer pruning, and, with extremely vigorous trees, root-pruning, have been attended to, there should be very little use for the knife at this season, though it may be advantageously employed to thin out wood or spurs where too thickly placed. For weakly trees with an overcrop of bloom buds it is advisable to remove some of the buds where too closely set to give additional strength to those retained, an overcrop of blossom taxing the energies of the trees so severely as to prevent the fruit setting and swelling freely. Plums as bushes make a quantity of spray, soon becoming crowded with spurs, and unless they are thinned some are likely to die. Remove dead spurs and all unnecessary growths. The pruning, dressing, nailing, or tying of the above-named trees and Cherries should be concluded as soon as possible. Apricots are best pruned early, as the wounds have more time to heal, and are consequently less liable to gum than when the sap is active. Beyond cutting out the old weak bare wood, shortening any long spurs, thinning where too crowded, and keeping the growths close to the wall, the knife should be used as little as is necessary to ensure the symmetry of the trees.

#### FRUIT HOUSES.

*Cherry House.*—If the house was closed early last month a little fire heat will now be needed to keep the temperature at 40° at night and 45° to 50° in the day, allowing an advance of 5° to 10° under the influence of sun heat. It is, however, a great mistake to proceed too hastily in the early stages of forcing fruit trees, particularly with the Cherry; therefore commence ventilating the house at 0°, and when the weather is mild and sunny admit air abundantly. Attend regularly to watering trees in pots, syringing them occasionally, and damping as required to promote growth. If black aphides are present fumigate repeatedly, so as to have the trees clean before the blossoms expand.

*Cucumbers.*—Plants in bearing will require to be examined at least twice a week, removing all weakly and exhausted growths, and reserving as many of the young bearing shoots as will maintain a balance between the roots and foliage, retaining, however, no more than can have full exposure to light. Stop the shoots one or two joints beyond the fruit, keeping strong plants more closely stopped than those that are weakly. If mildew appear promptly dust the foliage with flowers of sulphur, also applying it to the hot-water



pipes. Damp the floors and other surfaces at about 8 A.M. and 2 P.M., repeating it if sharp firing be necessitated in the early part of the evening.

*Figs.*—See that the fermenting materials in the bed are replenished from time to time as necessary to maintain the heat of the material about the pots steady at 70° to 75°. The forward trees being now in active growth will require abundant supplies of weak liquid manure of the same temperature as the bed—viz., 75°, and should have a top-dressing on the surface of the soil of well-decayed manure. The night temperature may range from 55° to 50°, and 60° to 65° in the daytime artificially, commencing ventilating from 65°, increasing it with the rising temperature to 75°, keeping it between that and 80°, and close the house at 65° to 70°. Trees planted out intended to afford ripe fruit about the end of May must now be started, keeping the temperature at 50° at night, 55° by day from fire heat, and from 60° to 65° from sun heat, allowing a free circulation of air above 65°.

*Strawberries in Pots.*—Another batch of plants should be introduced to a Peach house or vinery where no special structure is at command for the forcing of the fruit to succeed those which were introduced in December, which will now be well advanced for flowering, and it is important that aphides should be subdued before the flowers expand. Until flowering a temperature of 50° to 55° is most suitable, and with an advance of 5° to 10° from sun heat, accompanied with a free circulation of air, which is essential to the vigour of the trusses and blooms. It is also essential that the house have free ventilation whilst the plants are in flower with the temperature above indicated, and the blossoms kept dry, assisting fertilisation by liberating the pollen with a feather or camel's-hair brush. When the fruit is swelling the temperature should be 60° to 65° at night and 70° to 75° by day, with 5° to 10° more from sun heat, maintaining a moist atmosphere, and feeding with liquid manure, continuing this treatment until the fruits change colour, when a drier atmosphere and less supplies of water at the roots will be necessary to ensure good flavour.

#### FLOWER GARDEN.

As there is little of an attractive character in this department it is of the greatest importance that the walks and grass be kept in the best possible condition by frequent sweeping and rolling, having the beds and borders neat. Lawns or grass verges that have an uneven surface should be attended to at once, as nothing is so offensive to the eye as an uneven lawn. Any alteration involving the relaying of turf should be proceeded with in favourable weather. The surface of lawns that are mossy should be well raked and top-dressed next month with a mixture of lime, wood ashes, and soot, in about equal parts, applied at the rate of a peck per rod. Shrubbery and herbaceous borders should now be dug over as deeply as the roots and plants will allow, affording a top-dressing of decomposed refuse or old potting soil. The stronger-growing herbaceous plants, such as Phloxes, will be benefited by a good dressing of manure, and Hemerocallis, Irises, &c., outgrowing the space allotted to them may be re-arranged or reduced. Where it is intended to grow *Ricinus*, *Wigandias*, *Solanums*, and *Cannas* a good dressing of manure must be given, and the ground trenched; also for *Dahlias*, *Hollyhocks*, and other plants that require a deep rich soil.

#### PLANT HOUSES.

*Orchids.*—*Dendrobiums* that are showing flower should receive a moderate supply of water at their roots, and will require an increase of heat to enable the flowers to grow, along with all the light possible. Care must be taken not to excite the general stock of *Dendrobiums*, nevertheless the plants must not be allowed to shrivel; the same remarks applying to *Cattleyas* and the majority of the Mexican *Orchids*. *Cypripediums* will require a plentiful supply of water, alternating occasionally with a little weak liquid manure. *Oncidium*s and *Odontoglossum*s will be coming into flower, and must be well supplied with water, otherwise the pseudobulbs will shrivel. *Odontoglossum*s that are growing rapidly should have a good supply of water at the roots. Keep a sharp look-out for insects, especially aphides, and promptly destroy them by fumigation. The temperature, from which no injury will result by a deviation of a few degrees, should be, for the East India house, 60° at night and 65° to 70° by day; Mexican house, 55° by night and 60° by day; cool or *Odontoglossum* house, 45° to 48° at night and 50° to 55° by

day. The necessary materials for potting *Orchids* may now be procured. A good supply of sphagnum is of first importance, and should have all the rubbish picked out of it, especially woody matter, as it encourages fungus. Peat will also be necessary, and crocks and pots should be washed clean. Material for baskets should also be procured, maple or oak and teak being most suitable.

## THE BEE-KEEPER.

### SHOULD BEES BE BRANDY-BIBBERS?

YOUR valued correspondent "B. & W.," in giving in a recent issue some well-timed "hints for safe wintering," recommends that the syrup used in feeding should be "fortified with a little gin or other spirit." I so generally agree with the writer that he will, I am convinced, regard me as only working with him for the common good if I explain my views upon this matter, which are certainly in this case most pronounced and the exact opposite of his own. The question involved is one to which I have given some little attention, and my settled conviction is that no greater error could be committed than that of giving to bees alcohol in any form. But no man has a right to an opinion until he has earned it by studying the grounds upon which it should be based, so I ask the indulgence of "B. & W." while I give the reasons for my position.

Different kinds of sugar, such as sucrose, glucose, and lactose, agree in containing carbon, hydrogen, and oxygen, the latter two in the proportions in which they form water. This sugar becomes the heat-giver to the bee in the following manner:—Air containing oxygen is taken in by the bees through the spiracles (the breathing openings) in the sides, of which there are fourteen in number, and this oxygen is by degrees united with the carbon of the sugar, which is being carried about in solution in the fluids of the insect. The carbon thus becomes a part of a gaseous product—carbon dioxide, which is thrown out from the breathing tubes (tracheæ) at every contraction of the abdomen. The union of oxygen and carbon is always attended with a great evolution of heat, and is, indeed, the sole cause of the fervour of a charcoal fire, and mainly gives intensity to one of coal. Heat, then, is developed within the bee's body as this chemical union progresses, and during the winter each insect plays its part in keeping up the temperature of the cluster. It must be added to save misconception, that in certain circumstances the organised tissue of the insect may itself unite with oxygen and contribute to heat formation, but our argument will be made the clearer if this point be left out of view.

We have now to consider the physiological effects of alcohol to ascertain whether the bee would be likely to be assisted by it in keeping out the cold, and here we must argue from its well-ascertained action upon men and some of the higher animals; but in this we shall be justified, since morphia, strychnia, aconite, and some other drugs are well known to microscopists to influence creatures even so low in the scale as infusoria and rotifera after the same manner as they affect those with the most complex organisation. Numberless experiments upon men, dogs, and Pigeons have clearly shown that alcohol *hinders* the union of oxygen with carbon in the vital fluids, and in consequence a smaller amount of heat is produced during its presence in the blood, while it follows that less carbon dioxide is thrown out. Applying this to the bee, it would follow as a matter of course that it would be far less able to withstand the rigours of winter with it than without it. Those who know anything of the history of our arctic expeditions will recognise the complete corroboration which these give of the truth of this position. That alcohol produces a feeling of flush is well known, but the cause is the partial paralysis of the pneumo-gastric nerve, the duty of which is to hold in check the minute blood vessels. The check removed, the blood vessels stretch out under the pressure of the contained blood, and a general surface blush is the result; but this no more produces warmth than would turning the hot inside of a manure heap to the surface warm it. Indeed it is an act of cooling, in which heat that before was deeply seated is made to display itself, but is at the same time lost by dissipation in the surrounding air. Those who care to look to the *Lancet* for August 25th, 1866, will find details of some remarkable experiments tried in University College Hospital, putting this matter in the clearest light, and showing that alcohol immediately after the first flush is a most persistent and powerful depresser of temperature. But since the structure of the circulation of insects is very unlike our own, it is



chiefly important for us here to note that its action is due to its lowering of nerve energy, than which nothing would be more likely to unfit bees for battling with the adverse conditions of a protracted winter. That alcohol may give a flash as it were none will deny; but even this it does not do because it gives strength, but because it renders a further paying-out of our resources possible; but as they are paid out we are left poorer, weaker, than before, hence the excitement brings exhaustion, and the higher the one the deeper the other. Alcohol is an irritant, and therefore a waster of vital energy, and so the very reverse of that needed by wintering bees, every power of which should by all means be husbanded in order that returning spring may find them with a large balance of energy still standing to their account.

Three powerful reasons, amongst several others unmentioned, are now before us, each one by itself sufficient to condemn alcohol as a part of bee food. We find it hinders oxidation and prevents heat being developed. It lowers nerve tone, and so in the end weakens. It irritates and therefore exhausts, while, so far as I have been able to discover, it does not bring us for these evils one countervailing advantage.

Good indeed would it be for many if the old unscientific delusion that alcohol keeps out the cold were altogether dispelled; but I write because I am deeply convinced that it will be good for our bees when every bee-keeper knows that protection keeps in the heat, and that good honest sugar is the right thing to produce it.—FRANK CHESHIRE, *Avenue Road, Acton.*

### CONGRESS OF GERMAN AND AUSTRIAN BEE-KEEPERS.

(Continued from page 15.)

As stated last week, the next question discussed was, "What are the essentials to be observed in order to winter colonies of German, Italian, and Carniolian bees well?" After some introductory remarks, which contained many valuable hints respecting wintering bees, Mr. Schlösser said that when Italian colonies had a population too small for wintering them it was advisable to strengthen them early in autumn by giving some brood comb or bees from other hives. The Italians should not be allowed to indulge their bad habits of tearing out their brood in autumn when there is nothing more to be gathered. Italian bees, he continued, were in the habit of arranging their brood in regular succession, and if not induced by feeding to make useless excursions they were always in a more advanced state than German colonies in spring.

Italian and German colonies with about 4 lbs. of honey at the end of March would raise proportionately less brood than if they had 12 lbs. of honey left; but Carniolian bees, as well as their hybrid descendants, often commence breeding early in the spring without any regard to the quantity of honey there may be in their hive. Gübler preferred to treat all races of bees alike. In his opinion the chief thing is to winter bees in a cool situation and in thick-walled hives with isolating layers. He wished the hives to be arranged in such a manner as to admit cool air to the bees. Another gentleman believed that nine-tenths of the bees perish through bad construction of hives. Mr. P. Schachinger of Vienna advocated wintering bees in a place which keeps out the frost, but from which heat of course should also be excluded. Mr. Klausmeyer described a different arrangement of the flight hole.

A "Few Observations on the Physiology of the Bee," by Dr. Dönhof—who was unable to finish his subject on account of the lateness of the hour—is a most valuable paper, and is published at length in the "Bienenzeitung." To a citizen of Cologne, however, it was reserved to carry off the local honours of the discussion.

Mr. Schüller introducing the question "What is the cause of the decline of bee-keeping in the city and district of Cologne which at one time was in such a flourishing condition, and what should be done to advance bee-keeping there?" expressed himself as follows:—"To make bee-keeping a success four things are necessary—1, The Cultivation of melliferous plants; 2, a sufficient number of hives; 3, Intelligence in the management of bees; 4, Favourable weather. As regards the last point, it might not be out of place here to quote the words of the late Baron von Berlepsch, 'When the sources of honey are flowing even the hedge poles furnish a supply.' The decline of bee-keeping in Cologne dated from the day when the first sugar factory was established there, which was immediately followed by the following strange police regulations:—

"I. It shall not be permitted to keep more than five stocks of bees to one house within the city of Cologne in such a way as to make it possible for the bees to get to other people's property. (The reading was interrupted by loud laughter and ironical cheering.

"II. Any person who keeps more than five hives of bees shall be liable to a fine of one to ten thalers (3s. to 30s.) for each hive above this number, or shall be liable to imprisonment if unable to pay a fine.

"III. This regulation shall come into force on the 1st March, 1855.

"Cologne, 5th December, 1854.

"Signed by the Superintendent of Police,  
"GEIGER."

"Gentlemen," continued Mr. Schüller, "I am sure there cannot remain the slightest doubt in your minds that this police regulation was drawn up without the assistance of any Cologne bee-keeper (Renewed applause). When this regulation came into force the fate of bee-keeping in Cologne was sealed. We have been endeavouring for years to get this law repealed, but not much progress has been made. From my point of view as a bee-keeper I maintain that bee-keepers existed before the sugar factories were built. Bees can easily be kept away by wire netting. It is incomprehensible to me how the tax-paying citizens of Cologne could have been made to put up with such regulation. Bee-keepers of Germany and Austria, let us get this police regulation withdrawn and in its place have legal protection to bee-keeping!"

Many other gentlemen spoke strongly to the same effect.

Pastor Weygandt read an excellent paper on "The Transfer of Larvæ from one Cell into another." The speaker admitted that, strictly speaking, this procedure was of no great practical value at present, but he thought it might afford very many advantages hereafter. For example, he said a bee-keeper may have a strong colony of German bees, of which he does not want any offspring; he may at the same time be possessed of a small colony of Cyprian, Carniolian, or Italian bees with an original queen. It might thus occur to him how desirable it would be to obtain as many queens of the new race as useful queens of the German colony. Pastor Weygandt proceeds by cutting open with a pair of scissors a royal cell in a comb of a German colony, bending the edges back, taking hold of the royal larva in the cell by means of a pair of tweezers, and removing it. He then places the worker larva of the race from which he wishes to rear queens upon a small camel's-hair brush previously moistened, and transfers it to the empty royal cell, embedding it in the royal jelly, and after this no further manipulation is requisite. The workers in almost every case seal the cell, and the worker larva becomes developed into a queen. The metamorphosis is in most instances distinctly recognisable on the following day. In reply to a question as to the age of the larva to be employed in such manipulation, Pastor Weygandt said it did not make much difference. He had by such transfer succeeded in changing worker larvæ which were on the point of passing into the pupa state into royal larvæ, and had occasionally obtained very vigorous and even the most beautiful queens. The practical advantage of such a transposition consists in our keeping a German colony a number of queens of the race which it is decided to increase. Pastor Weygandt's most interesting speech was loudly applauded. It was followed by a discussion on the composition of chyle.—ALFRED NEIGHBOUR.

(To be continued.)



The Title-page and Index of the last half-yearly volume of this Journal will be published next week.

**Garden Hose (Amateur).**—Vulcanised indiarubber hose an inch in diameter will be suitable for your purpose. We are unable to state the cost of hose and fittings; this information is best obtained from an ironmonger or dealers in garden requisites.

**Dalechampia Roeziana rosea (Alpha).**—You will find the cultural notes to which you refer as having been written by Mr. Wills, in No. 365 of the *Journal of Horticulture*, page 1, vol. xiv. You are quite right in your assumption that the author of them is the "great floral decorator of Warwick House, Regent Street, London."

**Garden Walls (Deodar).**—We are much obliged to you for your suggestion. Had we been aware of your possession of the back numbers we should have given the information in a different form. You will find the details of building walls illustrated on pages 50-51 of vol. xiv, new series; you will also find the subject treated on rather fully in vol. x. on pages 366, 430, and 431.

**Growing Fruit (J. B. B.).**—With ordinarily fertile soil there is no doubt whatever you may succeed in growing all the most useful hardy fruits if you follow the instructions that are published from time to time in this Journal. If you require specific information at any time to aid you in carrying out your project, we will readily supply it if you will state your wants fully and clearly.

**Peas for Succession (Reader).**—You will find a selection of useful varieties in reply to a correspondent on page 16 last week. If you add to the varieties there named those mentioned in your letter you will have the number you require, and which, sown at proper intervals and well cultivated, will afford excellent produce as early and as late as the weather permits.

**Forming Oval Beds (P. P.).**—If you refer to the issue of the Journal of June 3rd, 1880, you find two diagrams that will give you the information you require. If you do not possess the number it can be had from this office post free for 3½d. The name of your plant is *Ficus repens*.

**Planting Strawberries (J. C.).**—We are unable to inform you the cost per acre of planting Strawberry runners, as so much depends on the nature of the soil, the cost of the runners—some varieties being dearer than others—and the skill of the men employed. Assuming that the runners are small, early spring, just as signs of fresh growth are apparent, would be the safest time to plant. In the absence of farmyard manure 5 cwt. of guano and 2 cwt. of salt

per acre would answer on most fairly well-conditioned land; but if the land is naturally moist the salt should be withheld. Mr. Raitt's articles on Strawberry farming will probably afford you useful information.

**Fruiting Vines in Pots (J. Dixon).**—Your Vines being in 12 and 13-inch pots you may fruit them in these, or you may pot them into 18-inch pots, providing good drainage and not disturbing the roots. If you keep them in the 12-inch pots be content with putting the drainage right, relying on top-dressings of manure and applications of liquid manure at the same time. The Vines would carry a heavier crop if the pots were placed on shallow tubs containing soil, into which the roots could run after passing through the holes in the bottoms of the pots, which they would do freely. We shall shortly publish some notes on this subject.

**Peas and Broccoli (A Reader).**—Moderate-priced varieties of Peas of good quality growing 3 to 4 feet high are William the First, Laxton's Alpha, G. F. Wilson, James' Prolific, Princess Royal, Maclean's Best of All, Veitch's Perfection, and Omega. The heights of Peas vary with soils and seasons. Ne Plus Ultra grows taller than you require, nevertheless you ought to include it, as it is valuable for affording a late supply. Useful Broccoli for succession are Snow's Winter White, Cooling's Matchless, Leamington, Carter's Summer, and Suttons' Queen.

**Insects (W. Martin).**—The insects from having been wrapped in dry wadding were so dry and withered, mere husks only remaining, that it is impossible to identify them. If we can receive some in a fresh sound state, and you will inform us what plants they infest, we will endeavour to name them for you.

**Propagating Pyrus (Cydonia) japonica (A. H.).**—The best mode is to layer the shoots in September, pegging them into the soil at a sufficient depth to ensure their being constantly moist, and there let them remain for twelve months before they are severed from the parent tree. They are also increased from seeds and suckers. The Cabbage Broccoli is not, that we are aware of, yet in commerce.

**Carnations in Winter (Inquirer).**—La Belle and Guelder Rose are very useful white varieties, A. Alegatière scarlet, and Scarlet Defiance, with Rose Perfection are also good. We have tried the plan of growing them in the open ground during the summer, lifting and potting the plants in the autumn, but it is not so satisfactory as growing the plants well in pots plunged in ashes. By the former plan many of the plants receive a severe check, which seriously limits their period of flowering, which does not occur when the plants are grown in pots throughout.

**Layering Roses (Idem).**—If you layer or peg down the strong shoots of the Hybrid Perpetual Roses you will obtain far more flowers than if you prune them severely. Roots will also be emitted in due time from the layered portions if they are covered with soil deep enough and always kept moist.

**Camellia Flowers not Expanding (Florist).**—If you had sent us a portion of the growth as well as the decayed flower buds we should have been better able to have formed an opinion on the case. You say the "tree is perfectly healthy, with fine dark foliage, and is a very free bloomer, but not 1 per cent. of the flowers expand." Occasionally when a Camellia produces its growth in the full sun that growth becomes prematurely matured, and a great number of flower buds set. In that case, if a number of the buds are not thinned out, the flowers rarely expand, but most of them decay in the centre and fall off. Assuming that your plant has been properly supplied with water, and the temperature is suitable, we think you have left too many buds on the shoots, and as these could not have the support requisite for perfecting the flowers they have failed to expand. Some Camellias, however, never open their flowers so freely as others, and yours may possibly be one of the "stubborn" varieties. If this is not the case we think we have indicated the cause of failure.

**Vegetables for Exhibition (A. J. J.).**—From July 10th to August 10th the following will be suitable:—Red Round Potatoes.—Triumph and Beauty of Kent. White Round Potatoes.—Porter's Excelsior and White Emperor. White Kidney Potatoes.—Veitch's Improved Ashleaf and Woodstock Kidney. Peas.—Carter's Stratagem, John Bull, and Ne Plus Ultra. Broad Beans.—Seville Longpod, Carter's Leviathan, and Hardy's Pedigree Windsor. Runner Beans.—Champion Scarlet and Giant White. Dwarf Kidney Beans.—Canadian Wonder and Negro Longpod. Turnips.—Sutton's Snowball and Carter's Jersey Lily. Parsley.—Veitch's Curled and Carter's Fern-Leaved. Lettuce.—Alexandra Cos and Suttons' Superb White Cos. Parsnips.—The Student. Carrots.—Nantes Horn. Radish.—Red and White Turnip. It is unwise to rely upon one variety in each instance, or upon one particular sowing, as so much depends upon the nature of the soil and the weather experienced. Grow good breadths of a few standard varieties in preference to small patches of many sorts. Telephone and Telegraph Peas, which you have, are when in good condition unsurpassed for exhibition purposes; but on your light soil very probably they would be past their best towards the end of the stated time, and would then be excelled by Ne Plus Ultra. Stratagem is a dwarf and somewhat later form of Telephone. John Bull is scarcely so large in pod, but opens well, and this tells in its favour. A good dish of Ne Plus Ultra is not easily surpassed.

**Propagating Hardy Ferns from Spores (D. D.).**—Choose a pot which a bellglass will just fit within the rim, place a large crock over the hole, half fill the pot with smaller pieces, and on them place half an inch of moss; then fill the pot to the rim with the following mixture—viz., sandstone broken in all sizes from that of a grain to a hazel nut, sandy fibrous peat, and yellow fibrous loam, of each equal parts, adding to the whole one-sixth of silver sand. Put over the surface a very small quantity of sifted soil, and make it firm by pressing it with the hand. Put on the bellglass, and if it fit closely on the soil it is all right. Remove it, and stand the pot in a pan in a rather shady but not dark part of the greenhouse, for what is wanted is a diffused, though not a strong light. Give a good watering all over the surface through a fine-rosed watering-pot, filling the pan with water. Now take the frond with the spore cases open, and, holding it over the pot, rub it with the hand on the under side, and a kind of brown or yellow dust will fall on the soil. You may scrape the spore cases from the back of the fronds, but if the dust fall so as to make the soil brown or yellow it is enough. Press the surface gently with the hand and put on the bellglass, taking care that it touch the soil all round. Keep the pan or saucer full of water, and give none on the surface except it become dry, which it never ought to do, nor will it if sufficiently shaded and the saucer be kept full of water. When the surface becomes green tilt the bellglass a little on one side at night, and as the soil becomes greener tilt it higher, giving a gentle watering now and then to keep the surface from becoming dry. When the plants have made two or three fronds gradually remove the bellglass, and pot off the Ferns when they can be handled safely. The pots may be placed in a pit or a shaded position in a greenhouse.

**Cactus not Flowering (C. C., Donegal).**—You have treated your plants

too generously. In all probability they do not need repotting annually, and if they do the spring, not the autumn, is the best time for the work. The soil you employ is also too light. Two-thirds of turfy loam and one-third of leaf soil with a liberal admixture of crushed bricks, a little mortar rubbish and charcoal, form a suitable compost, the soil to be pressed very firmly round the roots and the plants not overpotted. In such soil the leaves will have more substance than when the plants are grown principally in leaf soil. From October to March, if the plants are kept cool, they will scarcely need any water, a soaking once every ten days or a fortnight being ample. When growth commences the supply of water must be increased, and throughout May, June, and July when growth is rapid it must be liberal. During the last-named month place the plants outdoors in the driest and hottest position at command, and when the growth is made gradually withhold water, and eventually give only just sufficient to prevent the stems shrivelling, they will then assume a bronzy hue and flower buds will form. Remove the plants to their winter quarters before the occurrence of autumn rains, just keeping the leaves fresh during the winter, and you may expect flowers in the spring.

**Pruning Roses in Pots (Idem).**—Remove the soft unripe portions, and proceed as described on page 10 last week; probably a third in length of the shoots will have to be cut off, as by your description the wood appears to be in an unripe state. Bone dust sprinkled on the surface of the soil is an excellent manure for Roses. If the soil is of such a character to adhere to the roots well the plant will probably sustain little check by being taken up and potted, but if it is light and falls away from the roots the plant will not expand its flowers after its removal.

**Names of Plants (B.).**—The larger form is a species of Hymenophyllum, probably H. tunbridgensis, and the smaller specimen resembles a Jungermannia, but both were insufficient for certain identification. (T.).—Asplenium lucidum.

**Scottish Bee-keepers (A Bee-keeper).**—If you will inform us in what way you conceive the information which you ask us to publish would be of general benefit the subject shall have our consideration.

#### COVENT GARDEN MARKET.—JANUARY 12.

TRADE very quiet, the market being bare, with scarcely any alteration to quote.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons.....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges.....	½ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches.....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert.....	dozen	2 0 4 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples....	½ lb.	1 0 2 6
Gooseberries...	½ sieve	0 0 0 0	Plums.....	½ sieve	0 0 0 0
Grapes.....	½ lb.	3 0 8 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ 100	12 0 18 0	ditto.....	½ 100	0 0 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsify.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 6	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	3 0 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 8
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### AGRICULTURAL IMPLEMENTS AND MACHINERY.

UNDER this heading a very extensive assortment of implements seem to claim our notice; we propose, however, only to occasionally refer to them, in order that other subjects more appropriate to the time of year may not be excluded. The use of new and improved implements is not only important as labour-saving, but also as a saving of time and money, all of which are of the greatest consequence to the home farmer, particularly as manual labour is not available as it was formerly, and in many important farm operations the labour of women and boys is missed, for in some districts female workers cannot be obtained.

We will first notice a very valuable machine in practical field labour, "Koldmoss Weed Eradicator," or improved weeding and seed-gathering machine, "Jurgenson's Patent," and sold by



nearly all local agents in the kingdom. This implement is extremely useful in the removal of weeds which may be growing amongst corn when it is in the last stage of blade just previous to the ear shooting-up in the stalk, and upon many farms where Charlock and wild Mustard abound the corn may have been drilled wide enough to horse and hand-hoe, yet such weeds as named will be found to a more or less extent to be left growing in the rows of corn, whether of Wheat, Barley, or Oats. In such cases and when the ground is soft the weeds are drawn up by the root, in other cases their heads are pulled off, in either way destroying the weeds or preventing their reproduction. It must be used at the time when the weeds have made considerable progress and the corn is yet in the blade, so as to freely admit the passage of the revolving combs either over or through it. The combs are lines of iron claws fitted along the drum of the machine, and revolving with it by a process of mechanism, and so adjustable that they can be lowered or elevated to suit the condition of the crops upon which they are required to operate. When so disposed or regulated they pass harmlessly through or over the young corn, and at the same time pull up the weeds, leaving them behind to die. We quote the result of a trial of the machine by a Mr. T. Casey, agent to Messrs. Ord & Maddison, who says, "We started the weeder about two o'clock. The day being wet was unfavourable. The field was covered with Charlock, no blade of corn could be seen. There were about eighty farmers present, and I believe there would have been as many more if the weather had been fine. Never did I see people more astonished, as the weeder made beautiful green lanes as it went up and down the field. Loud were the praises of the bystanders. A more successful trial could not have taken place." Since this trial large numbers of this implement have been sold, and the testimony of practical farmers who use it is favourable. These machines are drawn by one horse and are light of draught, as they only cover a space about 6 feet 3 inches in width. This weeding machine is at the same time the most useful and the best known implement for gathering White Clover and other seed-heads, and consists of a hollow drum resting upon two ordinary wheels, and so adapted as to be raised or lowered as required. In and out of the drum work several rows of combs, which catch the Clover heads, strip them off the plant, and let them fall into a bag attached to the drum. It is necessary to keep the parts of the machine well oiled; in particular the combs have to be kept clean and bright if expected to do their work well. A machine of the usual width strips during twelve hours' work the heads of the Clover growing upon  $11\frac{1}{2}$  acres of land. In conclusion, we recommend it to the home farmer as not only the best but the only way open to him to destroy the weeds in his corn crops in the absence of the hand labour which was once so usefully and generally employed in destroying the weeds of the farm. How far the implement can be used for the same purpose in other crops further experiments may in the future inform us.

We will next refer to Gibbs' drying machines, which are now of varying capacity, and which the succession of wet seasons has tended to bring into more prominent notice. Farmers may grow abundant crops of corn and hay, but if these are to be spoilt or seriously injured by wet weather how is it possible they can contend against, or compete with, the products of superior climates, where the weather can generally be depended upon at given times of the year as favourable for the harvesting of their growth of corn and hay? We have no notes by us or any calculation as to the proportion of seasons in which the agricultural products of the kingdom can be safely harvested in the open fields. In the absence of any such calculation, however, we know that in nearly every season either the early or late harvest periods are unfavourable, but this is especially the case in certain north-western districts and Scotland. Take, for instance the hay and Oat crop in these districts. How seldom can the crops be secured without damage more or less! hence the necessity of the adoption of the plan of putting hay into large cocks whilst green, and the making of numerous small ricks of Oats as practised in Scotland and other late districts. Now it appears to us that there are many points to be considered when we find that Gibbs' drying machines are offered to us, because when the weather is unfavourable and we attempt to preserve our crops from injury in the open field, we are subject not only to damage of the produce but also the waste of it. Take either hay or corn for instance. We wait for fine weather, and our corn or grasses for hay become over-ripe. We also incur expenses in continual operations, such as turning our hay, although we use the best machinery for tedding as well as raking, but when we have done all we can the slightest change of the weather causes waste. The leaf of the Clover is lost, the falling out of the corn or its sprouting, also the labour of setting-up stooks in stormy weather, adds the cost of extra labour to the

losses under the head of waste. Again, in our Clovers, during rain the extra time of laying on the ground damages the next crop, sometimes seriously. If machine-dried the green grass may be taken as fast as cut to the drier without any loss either of the leaf of the grasses or its aroma, or the ultimate feeding value of the hay. Just in the same way with regard to corn, for not only is the grain preserved of the best quality, but the straw—which is now of more consequence than at any former period, is secured both bright and sweet.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—This will now depend very much upon the weather. If it is open and mild plough after roots for Wheat; the sowing may be done simultaneously with the ploughing. There is a prospect of a good plant of Wheat sown now if the land is rich enough to bear it, and especially if the land should plough up heavily and be succeeded by some copious rains to settle it down firmly. In case, however, the land should plough up light and loose it should be then pressed at the time of ploughing and sown after the presser instead of drilling, for the grain then falls into the presser grooves and finds a firm bottom to root in. Again, if the land is light and dries off quickly after harrowing, it may be rolled with the ring roller with advantage and so left. If the weather should prove unfit for tillage work it will be necessary to employ the horses in carting manure on to Clovers and grass land if the land should be frozen and capable of bearing the carts without leaving wheel tracks; otherwise earth may be carted to heaps, gravel may be carted on to the farm roads or near and around the farm homestead, in order to maintain not only a decent appearance of the premises but to enable all the carting work on the farm to be done by light horse labour.

*Hand Labour.*—This will vary in different districts. Spreading manure after being laid out on the Clovers will be required; also, in the enclosed farms, hedging, ditching, banking, &c., will be going on. In the chalk-hill and stonebrash farms the hedgerows will, some of them, come fit for cutting, so that the hazel may be made into hurdles and made up for other useful or saleable purposes. Trenching in the meadows previous to being laid up for cutting of the grass intended for hay should now be done. The irrigated meadows will also require the constant attention of the drowner by changing the flood waters, so that all parts of the crop may be made ready for early feeding at the earliest period, and simultaneously one part with another. The threshing and marketing of grain for sale, also Clover and other seeds, should now be done when the weather is favourable, for we consider that these ought to be considered as applicable chiefly to the winter months, in order that the labour of the farm both in men and horses may not be required for such purposes during the busy times of spring and summer; indeed, we consider that if corn is kept for future instead of present sale the labour is the principal point to be considered, and that, if threshing of corn takes place in the leisure time of winter and the sale deferred, the corn should be in granary ready for delivery at any advantageous period of the markets in reference to value.

The shepherds on various farms will now be engaged in the lambing season, for the Dorset down ewes will now be in the middle of their lambing time. The Hants and Wilts Downs will be just commencing their lambing season. We have previously called attention to the preparations and formation of the requisite lambing yards; therefore, at present the duties of the shepherd and his assistants will be fully required in the lambing fold both by night and by day, and in the height of the season the men may take turns in the night work, so essential to the saving of lambs which may be weakly or otherwise requiring attention. The ewes, both before and just after lambing, should receive Cabbages and sweet hay, and the shepherd must look well to the ewes after lambing, so that when the lamb cannot take all the milk the udder should be drawn, for there is nothing more injurious to young lambs than an accumulation of milk in the ewe's udders, causing them often to reject it or to suffer from diarrhoea from taking it; in fact, there are so many matters requiring attention by the shepherd, both to the ewes and lambs, that we cannot now enumerate only a few. If the ewes suffer from inflammation of the udder it is a very dangerous disorder. In such a case we always bleed the ewe from the neck vein and until the ewe falls from loss of blood. This will generally allay the inflammation, whilst the common practice of bleeding from the udder vein is absolutely injurious, because there is an increased flow of blood afterwards to the affected part. We have often found that with copious bleeding from the neck and the application of the sugar of lead ointment to the udder will effect a cure; if not, a second bleeding and an application of verdigris ointment will prevent mortification.

#### VARIETIES.

*BRITISH BEE-KEEPERS' ASSOCIATION.*—The next quarterly conversazione will be held on Wednesday, January 19th, at 6 P.M., at the Board Room of the National Chamber of Trade, 446, Strand (opposite Charing Cross station). Subject for discussion—"Cheap



Bar-frame Hives for Cottagers' Use." To be introduced by F. Lyon, Esq., of 94, Harleyford Road, London. The annual general meeting of the Members of the Association will be held in the above room at 446, Strand, on Wednesday, February 16th, at 4 o'clock P.M. Members who wish to bring forward any motion at this meeting are requested to communicate the same to the Honorary Secretary, Rev. Herbert R. Peel, Abbot's Hill, Hemel Hempstead, on or before Saturday, February 5th.

— THE MECHI FUND.—A preliminary meeting of the Committee of the Mechi Fund was held on Friday last at the offices of the Royal Agricultural Benevolent Institution. Among those present were the Marquis of Huntly (Chairman and Treasurer), Mr. Samuel Morley, M.P., Mr. Thomas Duckham, M.P., Mr. R. K. Causton, M.P., Mr. James Caird, C.B., Mr. Edwin Chadwick, C.B., and Mr. Bousfield Shaw, the Honorary Secretary. Letters were read from Lord Spencer and others regretting their inability to attend. On the motion of the Marquis of Huntly, seconded by Mr. R. K. Causton, M.P., it was resolved that a national Committee be appointed with the view of raising a fund to provide for the widow and family of the late Mr. J. J. Mechi, and a general Committee, consisting of the gentlemen present, with power to add to their number, was appointed for the purpose of carrying out that object. Among the subscriptions promised were—The members of the Court of Aldermen, £500; the Duke of Bedford, £100; the Earl of Leicester, £100; Mr. Samuel Morley, M.P., £100; Messrs. Garrett, Grimswood, & Whittaker, £105; Mr. John Maple, £52 10s.; Mr. H. R. Nicoll, £52 10s.; the Skinners' Company, £52 10s.; Mr. Jeremiah Colman, £52 10s.; Messrs. Causton & Sons, £52 10s.; and Mr. James Caird, C.B., £50.

— SOLUBILITY OF MANURES.—Dr. Morgen, in the Journal of the German Agricultural Experimental Stations, reports the results of numerous experiments on the time required to render the valuable constituents of certain manure materials available for the growing plant. The chief articles experimented on were bone meal and leather meal. The total valuable contents of each were in about the same proportions; but the solubility of the bone meal was found far greater than that of the leather. No acid was used. The materials were used as they would have been by the farmer if bought in the rough state. The author strongly recommends the use of bone meal. His conclusions have been verified by others, and the employment of bone superphosphates and special manures having bones for their base is rapidly extending. Leather, however, when prepared with acids, and after receiving certain other treatment, is nearly as valuable. It is employed as the base of some special fertilisers with most beneficial results.

— OLEOMARGARINE.—A London daily paper states that the manufacture of oleomargarine in Philadelphia has reached the large quantity of 100,000 lbs. per week, and is still very far below the demand. The manufacture consumes about 1,500 lbs. of genuine dairy butter per day, and nearly 30,000 lbs. of fat, and, strange to say, quite two-thirds of the product is sent to Europe; London, Liverpool, and Glasgow being the chief markets. The Dutch are large purchasers too; but from long experience in the making of "bosch," they do not buy the finished article. They purchase the oil before it is churned, and finish the oleomargarine themselves, being well aware of the profit to be made by the addition of the salt, milk, and other ingredients which enter into the finished article—the "prime fresh butter at 1s. 2d." of the London shops.

— FOOT-AND-MOUTH DISEASE.—A serious outbreak of this disease has occurred on the estate of the Duke of Northumberland at Isleworth, the whole of a splendid herd of Scotch runts, numbering between thirty and forty, being affected. His Grace has a number of valuable cows and heifers on the same estate, and every care is being taken to keep them from infection. The disease is also prevalent at Twickenham, Hampton, Hanworth, and other parts of West Middlesex; indeed it is said to be more general in this division of the county than has been known for some years. In the county of Buckingham, the whole of which the Privy Council have declared to be an infected area, it appears to be subsiding, only one fresh outbreak being reported last week—viz., at Penn, near Amersham.

— DISEASE IN SHEEP FROM EATING LUPINS.—Lupin hay is often used as fodder on the Continent. In a recent case half of a large flock of sheep fed on it died within a brief period. The hay on examination was found to be covered with a fungus. The suggestion has been made that steaming the hay would prevent the injurious effects, or, perhaps, strongly heating it during its preparation.—(*Irish Farmers' Gazette*.)

## POULTRY AND PIGEONS

### A FANCIER'S INCUBATOR.

DURING the past two seasons I have been employing hydro-incubators instead of hens for hatching my Dark Brahma chickens. The first season I had but one incubator, and put in the eggs as they were laid. Finding, however, that more successful results were attained by placing the entire batch of eggs in the machine at once, closing all the ventilators, and thus keeping a close moist atmosphere for the first eight or nine days, and ventilating freely for the remainder of the twenty-one days, I last year worked two incubators. No. 1 was unventilated and kept very moist with a temperature of about 102°; No. 2 was thoroughly ventilated, not quite so moist, and kept at about 104°. The eggs were as they were laid placed in No. 1 and left there for eight days. The fertile eggs were then moved into No. 2, where they remained for the residue of the period of incubation.

This system worked fairly well, but there were two points capable of improvement; firstly, placing cold eggs amongst those some days advanced in the hatching process was objectionable; and secondly, the necessity of keeping two incubators at work involved much extra trouble. I wished for a machine which would combine in itself the qualities of the two incubators, and would also be suitable for ordinary fanciers who cannot possibly set ninety eggs at a time, but only a few each day.

The idea of a machine with two drawers, the one ventilated and the other unventilated, at once occurred to me, but I also thought there would be considerable difficulty in maintaining an equal temperature in two drawers deriving their heat from the same source but under dissimilar conditions as to ventilation. It also struck me that this unevenness of temperature might be, to a great extent, corrected by the eggs in the ventilated drawer being well on in the hatching process, and thus throwing out some heat themselves, while those in the unventilated drawer, not yet having an independent blood circulation, would absorb much of the superfluous heat.

I was ignorant as to how far these conditions would affect the result, while I knew from experience that a greater or less space between the eggs and the bottom of the cistern caused a material difference in the temperature. I therefore came to the conclusion that, by having the false bottoms of the drawers made capable of being raised and lowered by means of screws, any inequality of temperature might be met by increasing or diminishing the distance between the eggs and the source of heat.

A moveable division in the unventilated drawer would, I thought, obviate the difficulty as to putting cold eggs into the machine. I talked the matter over with Mr. Christy, and the result of our conversation was the construction of "the Fancier" hydro-incubator in an experimental form. A division was inserted in the drawer space of an ordinary ninety-egg hydro-incubator so as to accommodate two drawers, No. 1 containing thirty-six eggs, No. 2 containing forty-eight eggs. The false bottoms of both these drawers were made to move up and down to the extent of 2 inches, and in No. 1 there was a moveable division which fitted into slits cut in the side of the drawer. No. 1 was unventilated, No. 2 thoroughly ventilated.

This incubator was sent to my rooms at Herne Hill on the 26th of November; I at once got it to work, and on the 1st December I put a dozen eggs (Leghorns and farm cross) in No. 1. On the 2nd December I placed in twelve eggs more, and on the 3rd another dozen. The second and third lots were each for one day kept shut off from the rest of the drawer by the division. As soon as each dozen had been in nine days they were taken out of No. 1, tested for fertility, and the fertile eggs placed in No. 2. On the 14th, 17th, 21st, and 24th December respectively an additional dozen eggs were put in No. 1. Twenty-eight of the first three dozen contained living germs when tested (the remaining eight being clear or addled), and there was therefore at one period one drawer full of eggs only a few days in, and the other containing twenty-eight eggs with well-developed chicks in them. I

found that, although when both drawers were empty No. 1 was about 2° hotter than No. 2, yet when the stage already indicated was reached, No. 1 at an equal distance from the cistern was 5° or 6° colder than No. 2. I therefore gradually raised No. 1 and lowered No. 2. I found it necessary to go to the extreme limit of difference of height possible, and to put No. 1 two inches nearer the cistern than No. 2, before I could attain the heat I desired—namely, 102° in No. 1 and 104° in No. 2. The screws, however, gave me sufficient scope to obtain the desired temperatures, and have since afforded the means of meeting any variations caused by the removal of live chicks.

Now as to the hatching results. From the twenty-eight fertile eggs twenty-four fine healthy chicks hatched out, generally a day before they were due. One of the remaining four eggs produced a live chick, but it was a monstrosity and died at once. Two others died in the shell, when ready to hatch out, from their heads being so placed that they could not reach the shell with their beaks. The fourth was the only failure which could be attributed to any fault in the hatching, as it contained a dead chick of about seventeen or eighteen days' growth.

These results I consider most satisfactory; and indeed taking into account the season of the year, that the eggs had travelled by rail from Brandon, and that some of the second dozen were at least a week laid, I think the hatch wonderful. I have only to add that by the method of working which I adopted—namely, keeping a small gas stove constantly alight in the fireplace with a four-gallon pot of water upon it, and replacing the boiling water used by what I drew off from the incubator, the trouble and time consumed were reduced to a minimum; the atmosphere of my room was not in any way vitiated, and the expense was kept low. The average consumption of water was three gallons night and morning. The temperature of the room varied from 50° to 60°.

I believe that Messrs. Christy intend to make "the Fancier" rather larger than the experimental one—namely, to contain one hundred eggs in all, forty-five in No. 1, and fifty-five in No. 2 or thereabouts. This would give a steady setting capacity of five eggs per day, or fifteen every third day, and would probably suit the wants of many who now cannot use an incubator. "The Fancier" could of course be fitted with the new heating apparatus.—ALEX. COMYNS.

#### THE POULTRY CLUB.

THE last Committee meeting of the Poultry Club for 1880 was held on the 29th ult. at the Clarendon Hotel, Oxford. Present, the President (Hon. and Rev. F. G. Dutton), S. Lucas, and O. E. Cresswell. The Hon. Secretary reported that he had recovered for two members of the Club sums due to them from two defaulting shows. Complaints were laid against three other shows from members of the Club, and the Hon. Secretary was requested to inquire into them. The following new members were elected:—Mr. R. W. Brett, Gas Works, Hertford; The Hon. Mrs. Somerset Calthorpe, Ryde, Isle of Wight; Mr. L. Ponsonby, Old Parks Farm, Charlton, Malmesbury; and Mr. A. Stevens, Penhill, Cardiff, an associate member, was elected a full member. A communication concerning the management of a large show was considered. It was decided that the drawing-up of a circular, in conformity to the resolution passed at the Crystal Palace, would more properly be left to the enlarged Committee, which might probably meet for the first time at Wolverhampton during the time of the show.

#### ABERDEEN SHOW.

THE fifteenth annual Exhibition of the Northern Poultry and Pigeon Club was held at Aberdeen on the 6th, 7th, and 8th inst. It was very successful both in regard to the number and quality of the exhibits, and the management was all that could be desired. Owing to a rule that not less than six entries should in any class form a competition, several classes were deleted and the entry fees returned. We think it would be better to allow the classes in such cases to stand, but to diminish the prize money or withhold some of the prizes. One of Mr. Tomlinson's incubators was specially purchased by the Committee, and with a Christy already in hand was used for the purpose of hatching out birds at the Show. The incubators were opened at regular hours. They attracted much attention, and considering the circumstances gave very fair results. Mr. Raines judged the poultry, Mr. Alexander Frame the Pigeons.

**BRAHMAS.**—Any Colour Cocks (seven) were all Darks, and not good as a class, coarseness of comb being almost general. First (Edmonston) large, shapely, and good in colour, but coarse and uneven in comb and carrying too much tail and hook. Second (Lind) good in size, but of very defective colour. Third and fourth (Wilson) only moderate, the former, however having the only neat comb in the class; h.c., Mrs. Suter; c., Forbes. Hens (sixteen) were again all

Darks, and for size and shape were mostly of a good type. We think size has been properly kept in view in the north, and not sacrificed to mere peneilling. First (Sandeman) is, we believe a well-known winner. She is very pure in colour and well marked, but looks overdone. Second (Sandeman) another very good one of similar type, but deficient in foot feather. Third (Edmonston) rather brown in shade though well marked. Fourth (Mrs. Suter) same type as the winner, but not so good in marking; h.e., Edmonston, Mrs. Bennett (2); c., Edmonston, Duncan, Wilson, Duguid. Cockerels (fourteen) were, with the exception of one unnoticed bird, all Darks again, and a good class. First-and-cup (Edmonston) a good cockerel in nearly all points, his faults being a rather uneven comb and rather too much leg. Second (Toplis & Duff) good size, but not very shapely. Third and fourth (Edmonston) both good-sized hooked cockerels of quality, the latter very neat in head; v.h.c. (Mrs. Bennett), very shapely and neat in head, the best Brahma in the class, but too dark in hackle, and grizzled; h.e., Sandeman, Mrs. Suter, Toplis & Duff; c., Mrs. Suter (2). Pullets (fourteen) were as a class, like the hens, good in size and shape, in these respects far surpassing the southern birds, but not so good in marking. First and second (Mrs. Bennett), both exceptionally large and of good colour with fairly clear markings, and rightly placed. Third (Sandeman) rather deficient in breast marking. Fourth (Edmonston) shapely, and good in breast marking, but not clear on wings and back; v.h.c. and h.c., Mrs. Suter; h.c., Edmonston (2); c., Forbes Robertson.

**COCHINS.**—Any Colour Cocks (seven) were a fairly good class. First (Mrs. A. Davidson) a large Buff, rather hollow in breast and white in tail, entered at 10s. and bought at £1; a bargain surely. Second, Forsyth Grant. Third and fourth (Mrs. Steven) all very good Whites rightly placed; c. (Reid) a Buff. Hens (seven) showed a considerable failure in colour in the Buffs, to which the first three prizes went. First-and-cup (Mrs. Davidson) a large, shapely, and well fluffed bird, of a lemon shade, but mossy. Second (Steven) a similar stamp, but darker and worse in colour. Third (C. Brown) was rather better in colour, but carried too much tail. Fourth (Mrs. Steven) a good White; v.h.c. and c., Mrs. Davidson; h.c., Reid. Cockerels (eight) were rather a poor class. First (Mrs. Forsyth Grant) a large Buff, heavy in comb and uneven in colour. Second (Mrs. Steven) a neat White very free from yellow. Third (C. Brown) a moderate Buff. Fourth (Mrs. Davidson) a shapely Buff of the Dark sort; v.h.c., Mrs. Davidson; h.c. and c., Pickeman (Whites). Pullets.—No competition.

**DORKINGS.**—Coloured except Silver-Grey Cocks (six) contained some really good birds. First (J. Cran) a fine-shaped full-breasted Dark cock; he won the cup at Elgin last year as a cockerel for the best Dorking in the show; his comb was over, but only from the frost, we believe. One of Mr. Smyth's breed, we understand. Second (Cathcart) another Dark of good size but rather too upstanding. Third (Charles) another good Dark cock of Messrs. Smyth's strain, the cup-winner at Inverurie, we believe. Fourth (Snowie) another Dark of very nice quality, and might have stood higher but for one spur being outside; v.h.c. (J. Cran), a good-sized one light in colour. Hens (eleven) were a remarkably good class. First (J. Cran) a large-bodied shapely hen of very good colour with nice feet; second at Elgin, we believe. Second (Cathcart) another large hen, not quite so good in shape or colour as the winner; first at Edinburgh. Third (Cathcart) the third Birmingham hen, we think. Fourth (Cathcart) not quite so large, but good in colour; v.h.c., Charles, Cran; h.c., Toplis & Duff; c., Lind. Cockerels (nine) were not so good as a class as the old birds. First (J. Cran) a large bird with good comb and ear-lobes, and very white feet, but rather dark in colour and long in leg; he also came from Londonderry. Second (J. Cran) the Elgin and Inverness winner, in fine condition; will make a very good one with a little more age. Third (Toplis & Duff) the Dundee and Forfar winner, good in size and shape, but shockingly dark feet. Fourth (Ovens); v.h.c. (Cathcart) we preferred to fourth; h.c., Charles, Mrs. Snowie, Mrs. Morrison. Pullets (seventeen) were a very good class indeed, except that dark feet were very prevalent. We did not think them well judged. First (Anderson) rather long in leg and black feet. Second (Toplis & Duff) a large shapely pullet, but dark feet and one spur right outside. Third (ditto) a good pullet but for dark feet again. Fourth (Snowie) still another dark-footed bird; v.h.c., Cathcart (2); h.c., Charles, and 151, Cran, unnoticed, we liked best in the class; they were both good in size and colour, and had white feet; after them the prizewinners would have been rightly placed; c., Snowie, Smith, Morrison. Silver-Grey or White Cocks (six) were all Silvers of good quality. First (Morris) a grand bird, one of the largest and most massive for a Silver we have seen for some time. He might with advantage be more silvery in shade. Second (Cran) a cockerel, good in head and feet but hardly body enough. Third (Angus) another good old bird, splashed on breast. Fourth (Ovens) rather yellow on back. Hens (eleven) were another strong class of Silvers. First (Morris) a grand Dorking indeed but down behind, which some thought should have thrown her out. Second (J. Cran) the Edinburgh and Elgin winner, not so massive as first, but still a large fine hen of pure colour. Third (Mrs. Robertson) a squarely made shapely bird of medium size. Fourth (Black) also a good one though smaller; v.h.c. (Angus) might have stood fourth but for a corn on one foot; Ovens, Meff; h.c., Geddes; c., Morris. Cockerels (eighteen) were again all Silvers and a good class. First (Annand) nice in shape and colour but too long in leg.



Second (J. Cran) good in body and feet, but not quite right in colour, and comb over. Third (Ovens) a little too long in leg and squirrel-tailed, good in body. Fourth (Masson) the best shape in the class, but yellow and dark-footed; v.h.c., Black, Annand; h.c., Meff, Black. *Pullets* (twenty) were a very good class, Silvers being alone represented. First (Annand) the Elgin winner, a grand pullet indeed in all points. Second (Meff) a very neat good-coloured pullet, but far behind first. Third (Morris) not quite so clear in colour, long in leg, with dark feet. Fourth (Morris) squarely made and good in colour, we preferred her to third; v.h.c., Ovens, Annand; h.c., Black, Cran, Ovens; c., Meff and Duffus.

**GAME.—Black or Brown Red Cocks** (ten). First-and-cup (Duncan) a very reachy stylish Black Red, brown in fluff. Second (Park) a Brown Red, long in reach again and laced on breast. Third (Noble) a Black Red of similar type to the winner, but not so stylish. Fourth (Young) a Brown Red, nicely laced on breast but rather dull in colour. *Hens* (seven).—First (Allan) a powerful-looking hard-feathered Brown Red. Second (Noble) a moderate Black Red. Third (Glen) a reachy Black Red, not very clear in colour. Fourth (Park) a Brown Red again, more or less laced all over. *Any Other Variety Cocks*.—No competition. *Hens* (six) were not a strong class. First (Maxwell) a moderate willow-legged Pile. Second (Cable) another of the same sort, as also were third and fourth (Noble).

**HOUDANS.—Cocks** (eight) contained some fine birds. First (Adams) a grand-bodied bird of fine colour, but rather heavy in comb. Second (King) good in crest, comb, and colour, but slight and long in leg. Third (King) good size, but coarse in head again. Fourth (Massie) smaller but neat and shapely, failing in crest and comb; v.h.c., Carter and Thompson. *Hens* (thirteen) were a remarkably fine class. First (Adams) very nice in marking, good in crest and muffling, but hardly massive enough. Second (Mrs. Philip Turner) a beautiful crest with good shape and colour; on the whole we preferred her to first. Third (Mrs. Robinson) a solidly made hen, rather light in colour. Fourth (Mrs. P. Turner) a moderate bird. All the noticed birds were really good v.h.c., Turner, Carter; h.c., Turner, King; c., Chalmers. *Cockerels* (nine) were again a fine class. First (Mrs. P. Turner) the Crystal Palace and Birmingham winner looking well. Second (Adams) a good-bodied bird, rather too upstanding, bad fifth toe, and spurs outside. Third (Adams) a stylish cockerel, perhaps a trifle long in leg and deficient in crest. Fourth (King) a grand Houdan of the Dark sort, rather rough in comb; h.c., Craib & Reid; c., Masson. *Pullets* (eleven) were another fine class. First (Mrs. Turner) very good in crest, muffling, and colour, but deficient in chest. Second (Mrs. Robinson) better in shape but light in colour. Third (Adams) a good crest but not very large. Fourth (King) a very shapely Dark pullet, good in all points; h.c., King, Masson; c., Chalmers.

**HAMBURGHES.—Silver-spangled.—Cocks** (ten) showed, as a rule, too much comb. First (Campbell) good in colour and stylish, but rather large in comb and lobe. Second (Cowie & Fowler) a very ugly comb and red lobes, for which reasons we much preferred third (Campbell), which had a clear white lobe, and was fair in comb. Fourth (Anderson) a nice ear-lobe, but only moderate in marking; v.h.c., Mr. Matthew Mearns; h.c., Campbell, Ogg. *Hens* (eight).—Cup and all four prizes went to Mr. Campbell with birds good in most points, except that they had heavy combs; h.c., Lawson, Ogg. *Gold-spangled.—Cocks* (six) were not a strong class. First (Mearns) the Elgin winner in the Variety class, very stylish and good in colour, moderate comb and lobe. Second (Lowe & Kidd) a shocking comb, and rather large in body. Third (Walker) again bad in comb, but good in ear and colour; only moderate in marking. Fourth (Andrew). *Hens*.—No competition. *Gold or Silver-pencilled.—Cocks* (six) were only a fair class. First (Mearns) a smart cockerel, neat in head and lobe, and good in colour. Second (Leslie) nice lobe, moderate comb, colour fair. Third (Mitchell) clear in lobe, but rough in comb and bad in tail. Fourth (W. Smith) a moderate all round bird. *Hens* (eight) a moderate class. First (Meek) a nicely marked hen, good in comb and lobe. Second (Mitchell) not so good in breast marking. Third (A. Smith) only moderate. *Black.—Cocks* (eight) were far too heavy in comb as a rule. First (Winn) white lobe, and very brilliant condition; very heavy comb. Second (Cowie) rather more stylish and in good gloss, but heavy about the head. Third (Leslie) a smaller comb, but one very bad lobe. Fourth (Leslie) very smart, and not so bad in comb as the rest; we should have placed him higher. h.c., Leslie. *Hens* (twelve) were better as a class than the cocks. First (Terris) in good bloom and fairly neat in head, as also was second (Stewart). Third (Winn) failed rather in condition, though very neat in lobe. Fourth (Leslie) neat head and lobe, but dull in colour; v.h.c. Mrs. Wilson, Cowie; h.c., Winn, Chalmers.

**LANGSHANS.—Cocks** (six) were a fine class. First (Sleigh) a large glossy bird rather long in the shanks, and these almost devoid of feathers. Second (Bennett) of similar stamp, though not so bright in colour. Third (Tait) not so long in leg as the other two, and in brilliant condition, but with a rather large tail. Fourth (J. Cran) of the long-legged sort again; h.c., Mrs. Wade; c., Pirrie. *Hens* (six) a wonderfully fine class. First-and-cup (Mrs. Bennett) far the best Langshan we have ever seen, of great size, full breast, shapely and neat in head, moderate foot feather, of the same type as the winning cock. Second (Mrs. Bennett) of good size, but not very bright in colour, and too upstanding. Third (J. Wilson) in nice bloom, but slight in build. Fourth (Sleigh) very shapely and in fine bloom, but wanting foot feather. *Cockerels* (eighteen) were again a very good

class. First (Morris) large and in fine bloom, but too long in leg. Second (Mrs. Bennett) glossy, but long in leg and squirrel-tailed. Third (Watson) a good-bodied bird. Fourth (Sleigh) moderate; v.h.c., Linton; h.c., Tait (2) Pirrie; c., Sleigh. *Pullets* (fifteen) as a class were good and showed wonderful gloss and condition. First (Morris) square and shapely, but short of feather. Second (Bennett) another large good-shaped one, rather too long in leg. Third (J. Cran) same type as first. Fourth (Tait) very shapely, but perhaps too much of a Cochon type; v.h.c., Mrs. Grant; h.c., Strachan, Mrs. Bennett; c., Linton.

**LEGHORNS.—Cocks** (six) were not a good class. First (Blair and McDonald) a well-made richly-coloured Brown, with a huge comb and heavy lobe. Second (W. Fraser) a good White in all other points, but pink in lobe. Third (Robertson & Douglas) a Brown, fair in colour but rough in lobe, and comb over. Fourth (Anderson) a very dirty White, quite out of condition. *Hens* (nine) a good class. First, third, and fourth went to Mr. W. Fraser for Whites, good in all points. Second (Robertson & Douglas) a very large White, failing in lobe and colour of leg; h.c., W. Fraser.

**POLANDS.—White-crested Blacks** at the first look round struck us as wonderful classes, and upon consulting our catalogue we were surprised to find that all of the twenty birds (ten cocks and ten hens) shown belonged to the same exhibitor. We fancy that nowhere else than in Aberdeen could such a collection from one yard be seen as the birds sent out by Mrs. Henderson to this Show. Seven in each class were noticed, and deservedly so, by the Judge; and the cup for the best four birds in any one class by one exhibitor (Leghorns, Polands, or Spanish) of necessity went to Mrs. Henderson.

**SPANISH.—Cocks**.—No competition. *Hens* (six) were, except the winner, poor. First (Biset) a very nice pullet with a large flat lobe. Second (Ogg) a hen very good in face, but with a humped back and too long in leg. Third (Duncan) and fourth (Hunter) only moderate.

**ANY OTHER VARIETY**.—No competition.

**BANTAMS.—Game, Black, or Brown Red Cocks** (fifteen) were all Black Reds and a fair class. First (Grieve) a very shapely bird, good in reach but a trifle dull in colour. Second (Frew) another very smart bird, carrying his wings rather low. Third (Duncan and Kennedy) very dull in colour and apparently out of sorts. Fourth (King) in brilliant condition, but rather large, and showing some brown on his breast; c., Horne, Robertson. *Hens* (ten) were again all Black Reds and a moderate class. First-and-cup (Duncan and Kennedy) a neat hard-feathered bird, the best in colour. Second (Robertson) good in reach, as also was third (Carter and Thompson). Fourth (Grieve); h.c., Frew; c., Anderson. *Game Any Other Variety Cocks* were a moderate class of six. First and Fourth (Duncan and Kennedy) both willow-legged Piles. Second (Mitchell) a yellow-legged one, as also were third (J. Adam); and h.c., W. Adam. *Hens*.—No competition. *Black Cocks and Hens* (ten) were all Rosecombs and fair as a class. First (Grant) neat in head, nice in lobe, and in fine condition, but the cock a trifle large. Second (Mr. Andrew) good in lobe, but the cock rough in comb and the hen dull in colour. Third (Pirie) not in condition. Fourth (Craig); h.c., Ogg, McAndrew; c., Miss Frew. *Any Other Variety*.—No competition.

**DUCKS.—Aylesbury**.—No competition. *Any Other Variety* (ten) were a fair class. First (Mrs. Turner), good Pekins. Second (Mrs. Wade) Pekins again. Third (Fenton) Muscovies. Fourth (Angus) Rouens; v.h.c., Shepherd (Rouens); h.c., Mrs. Jack, Mrs. Barclay, Reid (all Rouens), Fenton (Muscovy). There was no competition in the classes for Turkeys, Geese, and Crossbred fowls respectively.

#### PIGEONS.

**POUTERS.—Blue or Black-pied.—Cocks** (eight).—All the winners were very fine and well placed. First (Mitchell), second (Robb), and third (Johnston) were all Blacks. Fourth (Black) a Blue. *Hens* (eight).—A very fine class. First, second, and fourth Blacks, and third a Blue, all came from the lofts of Mr. Mitchell of Glasgow; c., Mitchell (Blue). *Red or Yellow-pied.—Cocks*.—No competition. *Hens*.—No competition. *Any Other Colour.—Cocks* (nine).—The winners were all fine specimens. First (Phillips) a grand Mealy. Second (Robb) a Strawberry. Third (Towers); fourth (Hay), both Whites. *Hens* (nine) were another good class. First (Mitchell) a Black Chequer, second (Mitchell) a Red Chequer, third (Phillips) a Silver, and fourth (Hay) a White, were all true Pouters, small in girth, long in feather, and of good carriage. *Any Colour Cocks bred in 1880* (eleven).—First (Mitchell) a grand Blue. Second (Black) a Black, wanting a little in crop, but otherwise a good one. Third (Robb) a fine Black. Fourth (Wilson) a good Blue; v.h.c., Mitchell (Red-pied); h.c. and c., Johnston (Black). *Hens bred in 1880* (eight) were another very good class. First (Thomson) and second (Johnston) were Blacks, third (Wilson) and fourth (Robb) Blues; v.b.c., Mitchell (Blue); h.c., Towers (Red-pied); c., Phillips (Blue).

**DRAGOONS.—Cocks or Hens** (twelve), besides the winners, contained some splendid birds, worthy of a place almost at any show. First (Leith) a Yellow. Second (M'Boyle). Third (Johnston) Blues. Fourth (Leith) Red; h.c., Yardley; c. Findlay (a fine Blue) we preferred to second.

**BARBS AND CARRIERS.—Cocks or Hens**.—No competition.

**FANTAILS.—Cocks or Hens** (nine) contained some very fine specimens indeed. First, second, and v.h.c. (Stevenson) Whites. Third (Stevenson) a Black and White. Fourth (Glenday) a White.



**JACOBINS** were both splendid classes, and made such a show as has seldom been seen in Scotland. *Cocks* (fifteen).—The winners were all very good birds indeed. First (Jeffery) one of the best coloured Blacks we have ever seen. Second (Coalston) a Yellow. Third (Dale) a Red. Fourth (Weyman & Buchanan) a Yellow again; v.h.c., Weyman & Buchanan (Yellow); h.c., Weyman & Buchanan (Red), Coalston (Red); c., Marshall (Red). *Hens* (seventeen) also contained many grand birds. First-and-cup (Dixon) a grand little Yellow with fine feather tightly put on. Second (Jeffery) a Yellow, and third (Coalston) a Red, were also fine specimens. Fourth (Cowe) a Black, loose, but very long in feather; v.h.c., Weyman & Buchanan, Jeffery (Yellow), Dale (Red); h.c., M'Boyle (Red); c., Dale (Red).

**OWLS.**—*English.*—*Cocks or Hens* (fourteen), a good class. First (Wardle) was rather strong and rough a bird for our taste, we should not have placed him so high. Second, Duthie; third, Duffus; fourth, Marshall; v.h.c., Wardle, Smith, Duthie, Duffus; h.c., Marshall; c., (Findlay), we thought about the best bird in the class.

**TURBITS.**—*Cocks or Hens* (sixteen).—The winners, though in some cases not the best in colour, won by head properties. First (Dale), second (Glenday), third (Marshall), fourth (Marshall) were all Blues; h.c., Crabb (Yellow), Bruce (Blue); c., Wardle (Silver).

**TRUMPETERS.**—*Cocks or Hens* (seven) were all of the Russian type, and only of fair quality, some of them appearing overshadowed. First (Wardle) and second (Yardley) Black Mottles. Third (Dixon) and fourth (Gatty) Blacks; v.h.c. (Wardle and Gatty) also Blacks.

**NUNS.**—*Cocks or Hens* (thirteen).—The winners were well placed. First, Johnston; second, Dale; third, Wardle; fourth, Findlay. Some of the others had had nature assisted, and the Judge did not award any commendations.

**ARCHANGELS.**—*Cocks or Hens* (eleven).—One of the finest classes we have ever seen, the winners being splendid in lustre. First (Cowe) was the second Brighton bird, and quickly claimed at seven guineas. Second, Cowe; third, Gatty; fourth, Marshall; v.h.c., Cowe, Duffus; h.c., Cowe; c., Cowe (2).

**ANTWERPS.**—*Cocks or Hens* (ten) were only moderate in quality. First (Yardley) Red Mottle. Second (Yardley) Silver Dun. Third (Dale) Red Mottle. Fourth (M'Donald) Silver Dun; h.c., Cowe (Silver Dun); c., Glenday (Red Mottle).

**SHORT-FACED TUMBLERS.**—*Cocks or Hens* (fifteen) were as good a class as we have ever seen in the north. The principal winners had already taken leading places at Oxford and the Palace. Mr. Macfarlane of Stirling took first, second, and third, and also the cup for most points in any class of Pigeons with fine Almonds. Fourth (Coalston) a Red Agate; v.h.c., Macfarlane (2, Almonds); h.c., Yardley (2, Almonds), Macfarlane (Red Agate); c., Leith (Almond).

**ANY OTHER VARIETY.**—*Cocks or Hens* (fifteen) contained some really fine birds. First (Gatty) a grand Yellow Magpie. Second (Gatty) a very fine Frillback. Third (Mrs. Grant) a Red Magpie. Fourth (Jeffery) a Fairy Spot; v.h.c., Mrs. Grant (Black Magpie); h.c., Crabb (Swallow), Wardle (Satin), Yardley. There were many fine birds unnoticed, amongst them 645 (Cowe), a beautiful little African Owl.

**COMMON TUMBLERS.**—*Cocks or Hens* (nineteen).—First (Glenday) a Beard. Second (Glenday) a Mottle. Third (Cowe) an Almond. Fourth (M'Donald) a Bald; v.h.c., Miss Frew (White); c., Begg, Marshall.

#### CHRISTY'S HYDRO-INCUBATORS AT CANTERBURY.

THE Committee of the Canterbury Poultry Show wish to give publicity through your columns to their opinion of Messrs. T. Christy & Co.'s hydro-incubators, which that firm lately lent them for the purpose of making a personal trial of, and showing the machine at work to the visitors to the Show, and giving explanations of its management. Dr. Pittoch took chief charge of the experiments made, and was able on the morning of the Show to produce from the hydro-incubator about twenty live chickens, which were transferred to the rearing mother, and caused great interest and much pleasure to the spectators.

The Committee are desirous of making public their great satisfaction with the machine and its mode of working. Its success was amply demonstrated by the results. There were other incubating machines exhibited, but all failed to produce chickens, save Christy's hydro-incubator.—WM. PLUMMER, *Chairman*; GEORGE P. LADD, *Hon. Sec.*

#### NATIONAL PERISTERONIC SOCIETY.

THE annual Show of this Society was held at the Crystal Palace on the Tuesday and Wednesday of this week. Both as to the quantity and quality of the exhibits it could in most classes bear comparison with its predecessors.

*Pouters* were certainly the best collection the Society has yet produced. Amongst them we noted specially an excellent Yellow hen of Mr. Combes, also a fine upstanding Red of Mr. Gill's, the winner of numerous prizes. This exhibitor showed many other good birds. *Carriers*, as is usual here, were large in quantity and excellent in quality. Mr. Hedley exhibited many excellent birds, and was well supported by Dr. Square of Plymouth and other celebrated Carrier

fanciers. Mr. Poland's Whites were specially worthy of note on account of the scarcity of the colour. In Almond *Tumblers*, generally so largely shown here, we missed with regret the well-known birds of Mr. Jayne, who formerly was so large an exhibitor. Mr. Merck, however, sent some very charming specimens, particularly noticeable for their colour. *Baldheads* produced two very pretty pens from Mr. Murphy. There were a few pens of good *Turbits*, a class of birds always much admired. In *Jacobins* the entries were not so large as on previous occasions, and we fancy we have seen better quality on the whole. Mr. Hedley showed some very good *Barbs*. We missed the White *Fantails*, always so attractive to the ladies; but Mr. P. H. Jones showed a fine pen of Blues, also two Laced *Fantails*, a very uncommon variety. Amongst uncommon birds we may note two pens of Mr. O'Neef's, the one termed *Ancients* and the other *Modenas*. We imagine the latter are derived from the small Leghorn Runts. There were seven pens of English *Owls* exhibited by Messrs. Thirkell, P. H. Jones, Esquilant, Vero Shaw, and Van Senden. Fancy *Antwerps* were in great force, and Mr. Waterhouse showed some excellent specimens. This gentleman also sent a pen of very charming *Turbiteens*, *Bluettes*, &c. Mr. Price sent some very large *Runts*. The *Homing Pigeons*, as might be expected from the great popularity this breed has attained of late years, were very largely represented. Amongst the specimens were birds that had flown distances from three hundred to nine hundred miles; the chief exhibitors were Messrs. Tegetmeier, Logan, Winsor, and Carver. *Dragoons* of all colours were well represented. Amongst them there were a pen of Blues, the celebrated Chequer of Mr. Howard, some fine Grizzles of Dr. Dwelly, and some excellent Reds and Yellows of Mr. Leith.

#### OUR LETTER BOX.

**Cropping Arable Land (J. E.).**—An acre of land to produce food for dairy cows may be cropped as follows:—quarter of acre of Rye, followed by James' Intermediate Carrots; quarter of acre Trifolium, followed by Cattle Cabbage; half of acre Mangold, fallow and manured for. The green crops, &c., to be reversed each year with the Mangold crop.

**Grass for Permanent Pastures (X., Sidmouth).**—Grass seeds for laying down an acre of land of rather stiff loam into permanent pasture may be as follow:—8 lbs. of Dwarf Permanent Dutch Clover; 4 lbs. of Timothy Grass, or 12 lbs. of heavy seed; 4 lbs. Cocksfoot; 4 lbs. Hard Fescue; 4 lbs. Meadow Fescue; 6 lbs. Pacey's Perennial Rye Grass; or 18 lbs. of light seeds, the light and heavy seeds to be sown separately. The time of sowing, the method of preparing the land with manures, &c., is given with full information in this Journal on February 5th, 12th, and 19th, 1880. The numbers can be obtained at the office, price 3½d. each by post.

**Tortoises in Winter (Distressed Tortoise).**—There are a great number of species, most of which are natives of warm regions of the globe; but those that live in colder climates burrow and sleep during the winter. They are quiet inoffensive animals, extremely tenacious of life, and remarkable for longevity. Individuals are stated upon good authority to have lived upwards of two hundred years! The common tortoise, or *tartaruga*, *Testuda græca*, is a native of the south of Europe, and almost all the countries bordering on the Mediterranean. It is found in the islands of the Archipelago, Corsica, Sardinia, and in Africa, and is thought to be more common in Greece than elsewhere. It is from 6 to 8 inches long, and weighs about 48 ozs. This species is often brought to this country, and kept in gardens. One was brought to the archiepiscopal garden at Lambeth, in the time of Laud, in 1633, where it lived till 1753, owing its death then more to neglect than the effect of age. You had better place your pet in the greenhouse, and supply it with food. They live mostly on vegetables, but will eat almost anything, including bread soaked in milk.

#### METEOROLOGICAL OBSERVATIONS.

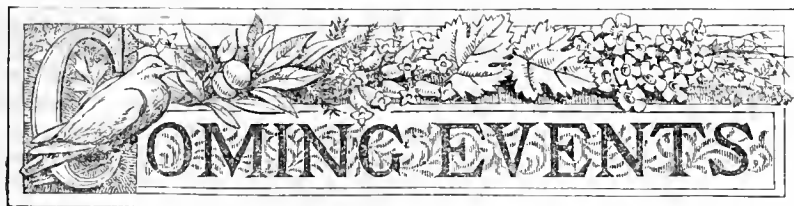
CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.  Jan.		Barom- eter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	2	30.392	41.7	41.5	E.	39.0	44.8	33.6	44.8	30.7	—	
Mon.	3	30.384	43.0	40.3	S.E.	40.0	43.5	40.5	46.4	39.1	—	
Tues.	4	30.275	39.5	37.6	N.E.	40.0	42.3	37.4	45.0	31.0	—	
Wed.	5	30.261	40.8	39.3	N.E.	39.9	43.6	35.8	62.0	30.6	—	
Thurs.	6	30.401	35.3	33.6	E.	39.4	41.6	34.5	72.0	30.3	—	
Friday	7	30.581	33.4	32.3	E.	38.4	41.3	30.6	71.2	24.6	—	
Satur.	8	30.561	32.7	31.6	N.F.	37.4	38.8	30.0	45.5	25.3	—	
Means.		30.408	38.1	36.6		39.2	42.3	34.6	55.3	30.2	—	

#### REMARKS.

2nd.—Overcast, damp, mild morning; dark and foggy in afternoon; clearer in evening, but foggy again after 9 P.M.  
3rd.—Misty, dark, and dull until 1 P.M.; afternoon fine and mild.  
4th.—Fair, but overcast generally.  
5th.—Fine and bright, with very cold east wind.  
6th.—Very fine, with bright sunshine all day; strong east wind.  
7th.—Fair, bright, and cold.  
8th.—Morning cold and overcast; sunshine in afternoon; fine evening.  
Barometer very high and steady; temperature rather below the previous week, and almost exactly the average. Direction of wind generally east, but usually light. No rain during the week.—G. J. SYMONS.



20th	TH	Royal Society at 4.30 P.M. Linnæan Society at 8 P.M.
21st	F	
22nd	S	Royal Botanic Society at 3.45 P.M.
23rd	SUN	3RD SUNDAY AFTER EPIPHANY.
24th	M	
25th	TU	
26th	W	Society of Arts, 8 P.M.

## FORCING VINES IN POTS.

VINES in pots are now very popular and largely grown for supplying early Grapes, and the practice is doubtless advantageous to the health of permanent Vines that would but for these be subjected to much earlier forcing. Those known as cut-backs are the best for very early work if grown at home, otherwise those grown from eyes in one season in the nurseries are as good. If Vines are cut-backs and home-grown they can be started into growth at any time, and in consequence the wood will be ripened earlier and better than those from eyes. The principal point where pot Vines are employed for early work is to have them ripe, so that they can enjoy a good rest before forcing time; this is most essential to success, and renders the work afterwards much more easy.

When grown from eyes it is difficult to have them ripened sufficiently early to allow a good rest before starting, for if the Vines only lose their foliage and are started almost at once success cannot be expected. In the majority of cases they are a long time commencing growth, and under such circumstances are liable to be overforced in their early stages and break irregularly; but with well-rested cut-backs success is more certain in every way.

There are many systems of forcing the Vines, one being starting them by applying bottom heat, and another without it. Success can be attained by both, but when the former system is carried out it requires to be done by practical men, or the result may be a failure. A bed of leaves and litter is made up in the majority of cases by those who supply the bottom heat they think necessary to cause the roots to grow, while the canes have a similar temperature to those started without it. By this course the roots are forced unnaturally into activity before any growth is apparent upon the canes. It is a question if the Vines supplied with bottom heat break into growth much earlier than those started without it, although in one case the roots are active, and in the other they are not. What this early root-action is required for before they have any leaf growth to supply with food I am at a loss to understand. The Grapes will not ripen much earlier than those started without bottom heat. In seasons like those of last year, when the wood of young Vines is not very ripe and bottom heat is applied in forcing them into growth, it is in my opinion critical if not dangerous. As before said, they are liable to be overforced and apparently continue well until the bunches appear and should begin lengthening-out, but if the wood is not fully ripe and the Vines had insufficient rest the bunches invariably curl and turn yellow, while those brought forward

under a more natural system of forcing are not so liable to fail. Last year I forced Vines under both systems, and those grown without bottom heat in their earliest stages were decidedly the better. I have no reason to condemn the bottom-heat system, because the Vines succeeded fairly; but I cannot see the utility of starting the roots before the other portion of the Vines, and I advise those anxious to achieve success to start their Vines without bottom heat. Those started in this way were placed upon ashes, while the principal bed in the same house was filled with fermenting material for the purpose of forcing Rhododendrons, Azaleas, and other plants into flower. The moisture rising from the bed of leaves and litter is a great advantage in assisting the Vines to break regularly.

Those forcing Vines in pots could not do better, if convenient, than make up a bed of leaves for the purpose of supplying a genial heat and moisture, but not to act as bottom heat, in the early stages of forcing. Although I advise starting without the aid of bottom heat, it can be employed with advantage after the roots have naturally commenced growth and the berries are set. Slight bottom heat is then rather an advantage than otherwise, and assists considerably in maintaining root-action, which is necessary for the proper swelling of the berries and the thorough maturation of the crop. Bottom heat if applied after the fruit is set, so far as I am able to judge, would bring them forward quicker, and if any time was lost in starting the deficiency would then be made up. Much of the difficulty of forcing Vines in pots is removed if the canes are ripened early, and when such is the case there is less need than ever for bottom heat in any stage. After a good rest they not only start into growth quicker and earlier, and any system of hard forcing that would under other circumstances have to be applied can be dispensed with, and a crop of Grapes ripened with comparative ease and certainty.

*Potting Matured Vines.*—It is by no means a common practice to remove Vines intended for fruiting from the pots in which they have been grown the previous year into those of a larger size. The system may not be new or original, but I have never seen it carried out until I practised it here in 1879 as an experiment, and was then ridiculed by more than one, who said if the Vines had been plunged in pots of a larger size, and the bottoms knocked out of those in which they were growing, there would have been some sense in the plan. This considerably daunted my courage for a time, and I entertained grave doubts about the success of transferring Vines into larger pots. However, they succeeded so well that I was tempted to try it again last year, which I did with marked success, and can now recommend the system to the readers of the Journal as a safe and satisfactory one. This operation must be carried out with care both in potting and supplying the Vines with water afterwards for some time, or the result may not be very satisfactory.

Grapes can be grown finer in pots both as regards bunch, berry, and flavour—in fact, in all respects when subject to repotting if carefully done—than could be the case if the Vines remained in the pots in which they were grown. After the Vines become established in their new pots they are not so uncertain as when fruited in the pots in which they were grown. They are not so liable to become dry at the roots, or to suffer from too large a supply of water, as is sometimes the case on the other system. Not unfrequently, for fear of erring on the

wrong side, they receive too much water, and at a time when they are being supplied liberally with liquid manure. When repotted they have abundance of substantial food in all stages which would otherwise have to be supplied by means of the watering pot. If liquid manure is applied long after colouring commences the flavour of the Grapes is invariably deficient, and, if not supplied with stimulants, what have the Vines to feed upon in the pots in which they were grown the year previous? When repotted they do not require much feeding. A little can be given according to the richness of the compost and the size of the pots; it can be discontinued at any time, so as not to be any detriment to the flavour of the Grapes.

I must here condemn the system of starting Vines in bottom heat, and having their roots in advance of the top growth, if they are intended to be repotted afterwards. I have tried it, but cannot recommend it: the fresh roots are broken in carrying out the operation and do more harm than good, and the system is dangerous and uncertain. Before potting the soil should be in readiness, and laid for a few days before being used in the house in which the Vines are growing, to be well warmed, so that no check will be occasioned by the use of cold soil. The soil should be rich, and consist of good fibry loam, manure, and small bone dust, and a little coarse sand if needed, or any other ingredients Vine-growers prefer, but the compost given will answer the purpose well. The pots should be well drained and covered with the roughest of the compost or a few horse droppings, and then potting should be proceeded with, the crocks and any loose soil from the surface of the old ball only being removed, disturbing the roots as little as possible. The soil must be pressed firmly into the pots, gradually sloping to the Vine in the centre, and if convenient space should be left for further top-dressing. I have tried reducing the old ball, or, at least, disentangling some of the roots to lay into the new soil, but this is scarcely a safe plan. Before potting, the old balls should be in a thoroughly moist state, so that water will not be necessary for a few days or a week. After potting the Vines can be tied up where they are intended to fruit, and if bottom heat is to be applied after the Grapes are set they can be so arranged in tying that the pots can be drawn forward to the bottom heat without untying. If plunged the watering must not be left to a careless hand, but to one who will use the water pot judiciously, and apply the water with care and caution. Careful watering is needed in all stages, but especially until the pots are well filled with roots.

Some may be inclined to think, if potting after growth has commenced is so beneficial to the production of better Grapes in pots, why not repot them in late summer or early autumn after they commence turning brown at the base and while the roots are active? I may add the roots do not keep in such good and fresh condition in large pots, nor do the canes ripen so quickly and well. In short, they will not produce such satisfactory results if placed in large pots before growth is completed as if the operation is done as detailed above.—  
WILLIAM BARDNEY.

#### AUTUMN FLOWERING OF AURICULAS.

I HAVE to thank Mr. Horner for his notes on this subject at page 2. It is a question of some interest to me, as I intend to add considerably to the comparatively small number of plants which I possess, and as some varieties are so expensive that we wish to make the most of them. Further, Auriculas are not altogether a hobby of my own, as my employer takes a great interest in the plants when in flower, and I wish as many as possible to flower in spring.

I will now call attention to some points in Mr. Horner's reply which I consider may be further discussed. He says that "all Primulas are spring-flowering, earlier or later, and may bloom in autumn, whether the summer has been hot and dry or not." When I wrote I was thinking of *Primula japonica*, *P. cortusoides*, and the varieties of *P. amoena*, which here flower rather in early summer than spring, and do not usually produce a second crop of flowers. With regard to a hot and dry or a cool and wet summer making no difference in this respect, we have the summer of 1879 and 1880 for comparison. Spring flowers did not flower a second time in the former year. Last year second flowering was quite common. What have others to say in this matter?

With regard to Auriculas, I saw it stated in one of the gardening papers some time since that Auriculas were flowering more freely out of season in 1880 than in 1879. If this is the general experience it would prove that a hot or wet summer has a bearing on the question. It was for that reason that I had our Auriculas watered the same as other plants are. I wrote, "I give them abundance of water." Mr. Horner wrongly conceives this to mean keeping them "wet," and how far this idea finds a place in his mind is seen when he condemns keeping them "very wet." No plant unless a native of bogs will thrive if kept in a wet condition at the root. Plants kept in a cool condition and protected from sunshine do not require as often to be watered as other flowers growing in the open; but letting that be understood, our Auriculas received water under like conditions. Mr. Horner has so often obtained high positions at the metropolitan Auricula shows that his dictum rightly carries the greatest weight with it. It will consequently be of interest to be told the exact meaning he gives to the phrase keeping the plants "but very moderately moist." And again, "through the summer I have found them always crisper, stouter, quieter, and greener without much water or exposure to sun." The crispness of the foliage would imply that the flagging stage is not allowed to be arrived at before water is applied, and the state of quietness hinted at would imply that the amount of water Mr. Horner gives his plants has to do with the production or non-production of autumn flowers. I may say we have a capital position for our plants—perfectly open, and yet protected from the sun by thick Holly hedges on the south and west.—R. P. B.

#### VEGETABLES TRIED AT THE EXPERIMENTAL GARDEN AT GIRTORD.

AMONGST some hundreds of varieties of vegetables tested at the Girtford Garden during the past season, many of them novelties, a few came conspicuously to the front, and others would doubtless have obtained prominence but for the exceptionally wet and sunless summer of 1880. This especially applied to outdoor Cucumbers, the trials of which were quite as unsuccessful as in 1879. On the other hand, French Beans, except where affected by the disease recently described by the Rev. M. J. Berkeley in a contemporary, were fairly satisfactory. Potatoes, too, were decidedly better than in the previous year, the crops being large and good, and the early varieties quite free from disease, but some of the second earlies and late sorts, including *Magnum Bonum*, were a good deal affected; in the case of the latter variety arising, doubtless, from the spores being present in the seed tubers which had been grown the previous year on strong and wet land, and consequently at least half the seed became diseased during the winter, although repeatedly looked over. Tomatoes planted out under a south fence were quite free from disease, ripened well, and furnished an excellent supply, which was only checked by the early frosts of October. Vegetable Marrows and Squashes were a wonderful crop, so much so that they became valuable as pig food, and notwithstanding that the young growth was much affected by the fly, the outcome of checks the plants sustained from the cold drying east winds of May. Carrots were, however, much injured by the grub. Turnips, as a rule, were stringy and not of the usual quality; and Onions, especially the autumn-sown varieties, suffered from excess of wet and have not kept well; the crop, however, being large.

The manure used in addition to London stable dung and soot was Clay's fertiliser, which was most effective with Asparagus, French Beans, Vegetable Marrows, Onions, Cauliflowers, and Tomatoes. For Potatoes the best rounds were obtained by applying the fertiliser in combination with burnt rubbish mixed with a small quantity of soot; the rows in which the combination was used showing unmistakably better results than where the constituent stimulants were employed separately. For Peas its effects were more conspicuous in the increase of actual produce than in the vigour and appearance of the plant. Soot and dung, on the other hand, appear, on the light sandy soil of the district, rather to increase the amount of straw and foliage at the expense of produce. I find, however, an application of soot as soon as the plants appear above ground of great advantage, as it tends to promote growth in the early stage, and thereby to protect the young plant from the destructive attacks of the weevil.

The following vegetables deserved especially noting:—

*Asparagus*.—One-year-old imported plants of the Early Purple Argenteuil, planted in April, 1879, on the wide-apart or French system, produced during the past season shoots upwards of half an inch in diameter, and quite equal to the best ordinary "grass" from beds several years old. Growers will find this variety both earlier, quicker in coming to market, of better flavour, and quite



as large as Connover's Colossal. The heads also of the Argentcuil variety are more symmetrical than those of the latter.

**Broad Beans.**—After a second year's trial the continental variety Aquadulce and a Californian congener known as the Megatherium (probably a selection from the first) have the advantage in size over all other Longpods. Some pods of the latter, containing six beans, measured upwards of 14 inches in length; but one of the best for quality, fertility, and appearance is Hardy's Pedigree Green Windsor. Some striking results have been obtained by crossing these varieties *inter se*, and also with the hardy winter sorts.

**Runner Beans.**—The finest of the Scarlet Runner type is the Giant White Prussian, the pods being long, broad, and succulent, and produced in great abundance. A cross between this and the Champion Scarlet Runner, of a similar type, but hardier than the white variety—a sort called Speckled Beauty—is also an acquisition, as it is considered somewhat hardier and earlier, and better able to withstand the spring frosts than the Scarlet Runner. The seed, too, is quite distinct, the colour being white, speckled with blackish brown. Several varieties with black or purple pods were tried and found excellent in flavour, although the colour of the pods precludes their being useful for market.

**Dwarf Kidney Beans.**—The largest-podded of this type were Messrs. Vilmorin's Haricot sabre à très grande cosse, a runner Bean with white seeds and very long pods, which are fleshy and freely produced, the pods containing from six to ten seeds. In Wax or Butter Beans, a new running variety from Messrs. E. G. Henderson & Son proved of excellent quality, the flavour being very rich and buttery. The colour of the pods, which are nearly stringless and succulent, is of a deep lemon yellow; it is the best of all the Wax Beans for flavour. Another excellent Bean of this type (also from Messrs. E. G. Henderson & Son) is Flageolet Dwarf Butter, a dwarf variety with long deep golden yellow-coloured pods of rich flavour. The best of the outdoor dwarf Beans for all purposes as proved in the garden during the past two cool summers was decidedly Early Rachel, a variety adopted on Chiswick recommendation; it is hardy and early, and the pods, which are straight and handsome, are produced freely and continuously over a long period. For market purposes I know of no variety to equal it. M. Chevrier's Haricot à graine verte (received from M. Lebeuf) is a French Bean with a really green seed, a desirable quality when Haricots are cooked in continental fashion. The pods, too, are tender and the flavour delicate.

**Beet.**—The Victoria from Messrs. Haage & Schmidt of Erfurt is an excellent bright crimson variety of medium size, coming in early yet keeping well; flavour rich and free from the usual earthy taste. The foliage is also of a good metallic purple, and the variety comes very true in character.

**Cauliflower.**—Henderson's Wellington proved not only earlier than the Early London, but the heads were of a more delicate white and very compact. It is an excellent market variety, the plants being comparatively hardy, as a good stock of them passed through the winter of 1879–80 without any protection but a slight covering of Bean straw during severe frost.—T. LAXTON, Bedford.

(To be continued.)

#### PELARGONIUM GUILLON MANGILLI.

SINCE Mr. William Taylor's evidence was published of the great value of the double Zonal variety for winter flowering I observe that inquiries relative to it have been sent to the Editors. Varieties of merit have increased so rapidly during the last few years that it is possible that others older but not less useful have almost passed out of cultivation, not always, it is to be feared, on the principle of the "survival of the fittest." Guillon Mangilli does not appear to be in catalogues now, hence those who require plants know not where to obtain them. Although I am not able to supply the information, yet it is possible that something may be learned by applying to Mr. B. S. Williams of Holloway, or Mr. Laxton of Bedford, both of whom were awarded certificates by the Floral Committee of the Royal Horticultural Society for the variety in question three or four years ago. I think also M. Aléatière and Messrs. Dicksons & Co. had similar honours for the same variety. I am unable to say which of the firms of Dicksons submitted plants for adjudication, all I remember is seeing a record in one of the horticultural papers that four certificates were awarded to the exhibitors whose names I have mentioned for Guillon Mangilli. Perhaps the authorities at Chiswick could supply some information on this subject, that would suggest where the variety may be obtained and the name of the raiser of it. I have this variety, and esteem it one of the most valuable for summer decoration on account of its excellent habit, freedom of flowering, and grand trusses of blooms, novel in colour yet rich.

I have not tried it in heat in winter, but Mr. Taylor's experience is sufficient on that point, and enhances considerably the value of a variety that might with advantage be largely grown.—J. D.

#### PEAR BERGAMOTTE HERTRICH.

FRUIT bergamot-shaped, inclining to roundish obovate, even in its outline, except round the stalk, where it is furrowed. Skin very much covered with ashy grey russet, through which the grass-green ground may be seen. On the side next the sun it has a brownish tinge, and there is a patch of thin pale brown russet surrounding the stalk and the eye. Eye with narrow incurved segments set in a shallow and furrowed basin. Stalk three-quarters of an inch long, inserted in a narrow cavity. Flesh yellowish with a greenish tinge under the skin, melting and juicy, with a rich flavour somewhat resembling the Swan's Egg, and a fine aroma. A delicious Pear.

The specimen figured was received from Sir Henry Scudamore Stanhope, Bart., of Holme Lacy, who writes as follows respecting this variety—"I had Bergamotte Hertrich from a French nursery near Orleans in 1865, and have grown it only as a cordon. With me it has been a strong grower and good bearer. The flavour is good. Some years it has not been so melting as others; but this

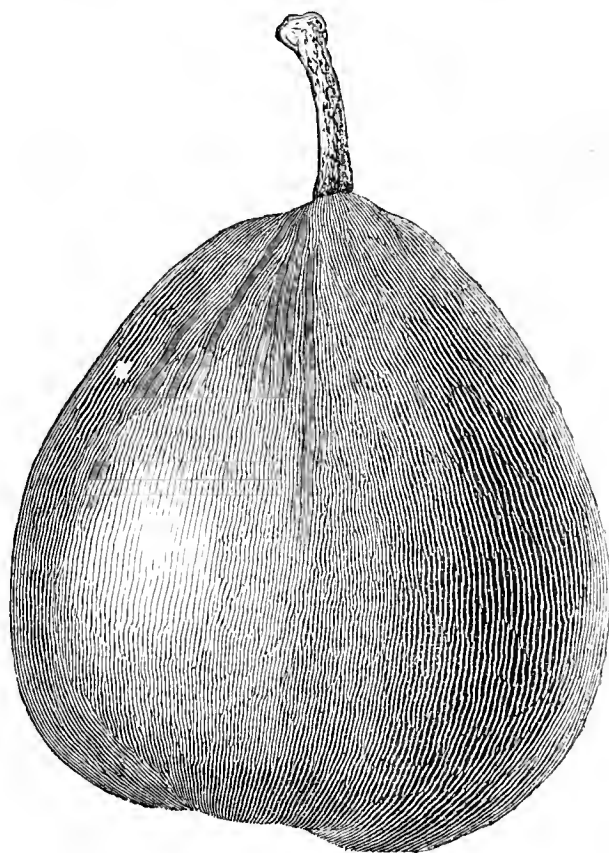


Fig. 9.

remark applies equally to Ne Plus Meuris, Monarch, and Bergamotte Esperen. It is an excellent keeping Pear, indeed this is one of its valuable qualities; at the same time it is easily brought forward in a warm room. I do not, of course, rank it so high as Glou Morceau or Winter Nelis as a January Pear, but it keeps much longer than either. I give you this merely as my experience of Bergamotte Hertrich. I am always reluctant to recommend Pears that are not generally known, for differences of soil, climate, and situation have so much to do with a Pear succeeding well in one county and being worthless in another."

Bergamotte Hertrich was raised near Bollwyler in Alsace by one Herr Hertrich, and was brought into notice by Messrs. Baumann the celebrated nurserymen of Bollwyler, in whose catalogue we find it in 1863. It is also mentioned in that of M. Simon-Louis of Metz of the same year. In the former its season is said to be from January to August, and in the latter from May till June. The specimen from which our figure is taken was quite ripe at Christmas, but Sir H. Scudamore Stanhope, in the above remarks, gives it a much longer period. All agree in calling it a hardy grower and a great bearer. In Leroy's *Dictionnaire de Pomologie* it is erroneously made synonymous with Bergamotte de Strycker.

**SAXIFRAGA GRANULATA FLORE-PLENE.**—This is a hardy outdoor border plant that I have not seen so specially commended to owners of small gardens as its great merits deserve. The flowers

are snowy white streaked slightly with green, and are produced in such profusion as to hide the foliage, which is of a bright shining green colour. I find it thrives best and throws up a greater quantity of bloom when grown in a shaded moist sandy peat soil, and I have given the plants an occasional supply of liquid manure, with the effect of improving both foliage and flowers. It is not likely to be lost, as the smallest of the tubers will grow on and produce a flowering plant the following year. The principal reason why this plant is not always satisfactory is, because instead of being divided and replanted in prepared soil, it is too often allowed to grow in a mass.—W. J. M., *Clonmel*.

#### THE NATIONAL ROSE SOCIETY.

A MEETING of the General Committee of this Society was held at the Horticultural Club on Tuesday, the 11th inst. The meeting, which was well attended, was presided over by the Rev. John B. M. Camm. The Secretaries read a letter from the Secretary of the Sheffield Rose Society, requesting one of them to attend their next meeting, and it was determined that the invitation should be accepted, and that Mr. D'Ombraïn should visit Sheffield.

The principal business was the appointment of the Executive Committee and the revision of the schedules. The former was a very important matter, as it was pointed out that upon this Committee would devolve the labour of issuing a catalogue of Roses. The aim of the General Committee then was to elect only men who, besides their great knowledge of the subject, would be likely frequently to attend the meetings; hence such skilled rosarians as Mr. Curtis of Torquay, Mr. Cranston of Hereford, Mr. Robert Baker of Exeter, the Rev. E. N. Pochin, and Mr. Jowitt of Hereford were not elected, although the sense of their loss was duly recognised. It was determined, however, in order to reduce this to a minimum that all the drafts of the proposed catalogue should be sent to such important members of the General Committee, with a request that they should alter, add to, and report on them.

The names of those elected to the Executive Committee are Mr. Burnaby Atkins, Mr. Byrom, Mr. Cant, Rev. John B. M. Camm (at present residing in London), Rev. A. Chcales, Mr. Cutbush, Mr. Hawtrey, Rev. J. M. Fuller, Mr. Heywood, Mr. Laing, Mr. Mount, Mr. George Paul, Mr. Prince, Mr. W. G. Sharp, and Mr. Arthur Turner.

Much discussion ensued as to the lines on which we should draw up the catalogue. Some members thought that it should embrace "the genus Rose," at which the Chairman suggested in that case that Mr. Baker of Kew had better write a monograph upon the Rose. It was felt by the majority, however, that something much more modest should be attempted, and that the Committee should report upon exhibition Roses only.

The Sheffield schedule, which was to have been revised, was not touched, as it was thought better to leave it till Mr. D'Ombraïn had been to Sheffield, there being some doubt as to the intentions of the men of the northern town as to the amount of money or plate intended to be given; but the Sydenham schedule was well discussed, although only some minor alterations were made.

Some notice was taken of the determination of the General Manager of the Crystal Palace not to allow the members of the Society a private view. This was felt to be a grievous hardship, as from the crowded state of the Show it is almost impossible for members to see the Roses after once the general public are admitted. The Secretaries explained, however, that they hoped in some way to diminish it by inducing the Crystal Palace authorities to devote more space to the show—in fact, to fill both transepts instead of, as before, only one. But this was felt to be only a palliative, and by no means a removal of our grievance, and ominous growls of "South Kensington another year" were heard from various parts of the room. The objection urged upon the part of the Manager is that the season-ticket holders protested so very strongly against their exclusion that they could not any longer grant the privilege. The writer of these notes is a season-ticket holder, and knows many others who are, and he never heard a complaint; and even if there were complaints, it is by no means an unusual thing for the Manager to receive complaints, and surely not alone the comfort but bare justice of the claims of those who bring their show to the Palace ought to be equally considered.—WYLD SAVAGE.

#### THE VEGETABLE SUPPLY.

YOUR correspondent "WILTSHIRE RECTOR" usually writes interesting and correct articles, but in his "Future Gardening" of your issue of January 6th he writes as follows—"Vegetables most certainly ought to bear a larger portion of our meals, but town population simply cannot get them." If he includes London and its supply he is certainly wrong, and I think should be set right.

In my immediate locality (where a large portion of the land is in market garden cultivation) there are 20 acres of Brussels Sprouts in one field; they are gathered by the stalk, and sent in that way by waggonloads to Spitalfields Market. They are realising at this time from 4d. to 6d. per dozen stalks; on each stalk there is an average of sixty to seventy hard sweet sprouts

as large as bantams' eggs. One stalk is equal to two small dishes, and to my certain knowledge are sold at the west end of London for 6d. a dish, the farmer getting after growing, picking, loading, carting, rail to London (twenty miles), and commission—one halfpenny—the public paying 1s. Another neighbour sent up a short time since a waggonload in sieves of the heads of Brussels Sprouts; they realised 2d. per sieve, thus losing the whole cost, including picking, packing, two miles of carting, twenty miles of rail, and commission.

At this moment I know of 15 acres of prime Savoys all decaying on the ground; they will be eaten off if sheep can be procured to do it.

Onions are grown here in large quantities and are repeatedly unsaleable in London; they are carted away for manure, having decayed in the clamps by hundreds of bushels.

I think I have shown that it is not the shortness of produce that prevents the poor getting a good and necessary supply of fresh vegetables.

I have suggested to my neighbour, that when it happens there is no sale for these things at Spitalfields Market that the waggons should be drawn into the poorest localities, say Bethnal Green or Whitechapel, and sold to the very poor at almost a nominal price; his answer is, they would not buy—scarcely have them at a gift. The buyers of greens from the costers are the better sort of people—mechanics, small shop and housekeepers. The lower labouring class will not buy or take the trouble to cook them if given.

If "WILTSHIRE RECTOR" could prevail upon these people to use them he would be doing them a service for their health and pockets' sake, and would benefit the grower, who, after having expended his time, his money, his experience in getting a crop, is unable to dispose of them even at a ruinous sacrifice.—W. P. B.

[We can confirm what our correspondent has stated so well. Many acres of vegetables are rotting in the fields, and the loss to the cultivators must be very serious.—EDS.]

#### THE CHRYSANTHEMUM FOR COUNTRY GARDENS.

I HAVE seen it repeatedly stated that the Chrysanthemum is essentially a town plant, a plant for the middle classes, but one which would not be tolerated by the gentry and nobility in their country gardens. Near to large centres of population Chrysanthemums have been cultivated in many small gardens and grown to great excellence, whereas in large country gardens, where many things press on the gardener's attention at one time, the plant has been necessarily neglected. Everybody who has grown Chrysanthemums knows how easily they are cultivated, and that any neglect continued for a short period ruins the season's flowering. That is the only reason I can conceive why Chrysanthemums are neglected by country gardeners, for I know by experience that the flower itself is as highly esteemed by employers in the country as it is by those living near towns. A good collection of Chrysanthemums is expensive to grow well. Potting, staking, disbudding, and watering are all important, and they cannot be neglected if success is expected. At the same time, as a country gardener, I am quite certain they well repay all labour bestowed on them; at least such is my experience. With a good collection of well-grown Chrysanthemums and another of Zonal Pelargoniums, and you may have a display which you may well be proud of at the worst season in the year. I never grudge any labour spent on either of these flowers, they repay it so fully.

To those who may be intending to grow Chrysanthemums in the coming year the following hints may be useful in selecting varieties. Do not grow too many of one section, but obtain the best of each. Some people prefer incurved flowers, others Japanese, and others, again, admire the Anemone varieties. If many cut flowers are required include the varieties best fitted for that purpose. Good varieties for cutting are also amongst the finest in their sections. The following list includes most of the best:—Large-flowering Incurved—Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny, Jardin des Plantes, Mr. Brunlees, Empress of India, Venus, White Venus, Prince of Wales, Lord Derby, Pink Perfection, Mrs. W. Shipman, General Bainbridge, Mrs. Sharpe, Her Majesty, Antonelli, Lady Slade, Lady Hardinge, Prince Alfred, Bella Donna, Beverley, Golden Beverley, Princess of Wales, and Princess Teck. Of the reflexed flowers the following are well worth growing:—Dr. Sharpe, Progne, Julie Lagravère, Beauté du Nord, Christine, and Annie Salter. A few of the large-flowering Anemone varieties should also be grown. Of these, Fleur de Marie, Lady Margaret, Mrs. Pethers, Gluck, Empress, and Louis Bonamy are excellent. A good selection of Japanese is the following:—James Salter, Elaine, Fair Maid of Guernsey, Oracle, To Kio, Peter the Great, Madame Godillot, Ethel, Fulton, The Sultan



Sarnia, Gloire de Toulouse, Fulgore, La Nympe, Madame Lemoine, Bouquet Fait, Hero of Magdala, Dr. Masters, and Grandiflora, Erecta superba. Amongst the Pompons a few of those known as Anemone Pompons should be grown; these are very useful for cutting. Some of the best are Madame Montels, Marie Stuart, Jean Hachette, Antonius, Dick Turpin, and Perle. Of the ordinary Pompons the most suitable are Cedo Nulli, Mdle. Marthe, President, Golden Circle, Bob, and Bijou de l'Horticulture. Besides these I intend to have many early-flowering varieties both out of doors for border decoration and in pots for flowering in October. Little Bob, Madame Peceval, Fred Pélé, l'écocité, Illustration, and a pure white one, of which I do not know the name, are distinct and good. These are enough to begin with.

In commencing the cultivation of the Chrysanthemum I would advise purchasing the stock as cuttings. Order from three to six cuttings of each variety in the large-flowering and Japanese sections; the Pompons according to the number you may require to grow. The cost will be merely nominal, and every cutting is, under ordinarily good treatment, sure to root. I prefer placing the cuttings in sufficient heat for them to require regular watering, which consequently induces quick rooting; after roots are formed the young plants are better kept cool. We propagate a large number of a few good varieties for the production of flowers; they are struck in March, and after being rooted are placed on ashes in a cold frame until planted out in the kitchen garden, where they remain until October. The cuttings for culture in pots should be placed singly in small pots. At the beginning of April shift the plants into 5-inch pots and keep them cool. The plants will thrive well in these pots until they are finally potted in the beginning or middle of June. They will, however, require liquid manure to render them healthy and vigorous. I tried various sizes of pots this past season, and have found three plants in a pot 13 inches in diameter are the most satisfactory in foliage and blooms. The large pots are also easier to manage with respect to supplying water.

The Chrysanthemum will grow in almost any soil, but I prefer a strong loam with a third of manure composed of equal parts of cow and horse dung rubbed down fine; soot and bone dust may also be added. Good drainage is required for large pots, and the soil cannot be rendered too firm. It must be remembered that the firmer the soil is the finer will be the roots, and the better the quality of the blooms. When the whole plants are in their flowering pots arrange them in a position that is not too sunny; place stakes to each growth, and tie loosely. I am not particular about rubbing off side growths, as they furnish us with a good supply of flowers for cutting. As the soil is filled with roots supply liquid manure every time the plants require it. Watch for the terminal bud, and rub off all with the exception of that one. From the middle to the end of October the plants must be housed. The chief point to keep in view is to keep the buds near the glass; when they have opened the plants can be arranged for effect. The only enemies the Chrysanthemum has to contend with are a species of aphid that may be destroyed by repeated applications of tobacco powder, and a maggot which some seasons is very destructive, but may be killed by squeezing it between the finger and thumb. Towards autumn mildew attacks the foliage; slight dustings of sulphur is the antidote for this.

Pompons require pinching about three times, and the shoots tied out: with a few stakes these make very useful decorative plants for conservatories. Most of our plants have been stripped for church decorations, but we have dozens of plants of Fair Maid of Guernsey which have not yet opened a bloom, besides numbers of Julie Lagravère and others now at their best. These were all planted out in the kitchen garden, lifted in October, and placed in a cool well-ventilated house, where they have received abundance of water at the roots.—R. P. BROTHERSTON.

### MUSHROOMS.

It will be admitted that the successful growth of Mushrooms is an accidental circumstance with most people. Why this is so I shall not stop now to inquire, but it will be readily understood by many who are interested in their culture. We rarely see them in the market or in the shops unless it be during the short season that they are found in the meadows and pastures—their natural home; and here its uncertainty is made manifest, for while in one autumnal period they are declared to be in plenty, another there is none, and in many pastures they may at all times be looked for in vain. I am led to these remarks by having seen so recently as Friday, the 24th December, some really fine solid Mushrooms growing in the open air—that is, with no other protection than some small handglasses afford, and with an old piece of mat thrown over these when the Mushrooms appear.

My neighbour's garden has a large mound of scoria from the furnaces of his mills, which has accumulated until it is now several feet high; in front of this on the sunny side is a narrow uneven strip of ground not more than a land yard in extent. It was well manured and broken up in the springtime, salading was grown there afterwards, and then the same plot of ground was planted with Veitch's Giant Cauliflower, and which speedily grew to a large size. Before the planting of these Cauliflowers, however, it is right to say, my friend said he had by him probably a bushel of Mushroom spawn which had been lying by unused for perhaps three years. He broke this up, scattered it upon the ground. It was then pointed in with a digging fork; the Cauliflowers were planted, and before these were cleared from the ground Mushrooms began to appear, and have continued so to do with more or less abundance to this hour. A few days ago my neighbour said to me, "I have taken to Exeter again this morning another fine lot of Mushrooms, and there are more coming now."

From this small spot of ground, and by this means, he has gathered considerably over half a hundredweight of prime Mushrooms, and latterly, as is well known, their value ranks high—1s. per lb., to put it at a low average quotation; some idea, therefore, of his success may be easily gained.—JAMES ENSTONE, *Wear, near Exeter.*

SOME time ago I read an inquiry in the Journal as to how Mushrooms can be established in pastures, and in reference to that the following remarks may not be devoid of interest. One field here has this year produced such great numbers of Mushrooms, and so many people came to gather them early in the morning, that the farmer had to stop the practice, as the Oats were greatly injured. This abundance was attributed to salt having been strewn over the land with the corn, which seems all that is required here to induce the growth of Mushrooms. I have seen salt strewn on meadow land with the same result, especially where cattle graze. About Lent seems the best time to strew it over pastures. The manure of cattle greatly increases the number of the Mushrooms, but I cannot understand their appearing in a field where only a slight dressing of manure was placed as usually used by farmers for killing wireworms. I have seen the same result when Saintfoin that had been down nine or ten years was broken up, salt being employed for fear of wireworm. I would advise gardeners to try the experiment in parks where cattle are kept. Perhaps some of your able contributors can enlighten us as to Mushrooms coming on arable lands where they have not been seen for years, and where no manure has been placed.—HENRY GALTON.

P.S.—I intend to try salt round our clumps next year.

I WISH to add my testimony to that of Mr. Thomson as to the value of sawdust for a propagating and plunging material. Palms and other stove plants plunged in it soon root-out and enjoy it. I wish also to state another valuable use we make of it. Sawdust about here has for several years been very much employed as bedding for horses. Two years ago I found in the manure from such bedding after lying in a heap a short time, what appeared a good Mushroom spawn; and as we had difficulty in procuring sufficient droppings for making Mushroom beds, I determined to try a bed of sawdust manure, and fully made up my mind for a good crop of bad fungus, but to my agreeable surprise it turned out the best bed of Mushrooms that we have had for years. Since then I have used nothing else when I wish to make up a bed. I have the manure fresh, make the lower part of the bed, then screen part of the sawdust out of the remainder of the manure, and add about 2 inches of the screened droppings on the top of the bed, make it thoroughly firm, then insert the spawn, soil it over, smooth the surface with the back of a spade, and in a month or five weeks I have a fine crop of strong brown-capped Mushrooms. I had insufficient spawn last spring, and after making a bed neglected to spawn it, as we had such a large crop on hand. In a few weeks the Mushrooms began appearing; I then soiled it over, and had as large a crop from that bed as any of the others, but of a smaller size. Possibly the above information will be of some service to your readers.—JOHN WOOLLAM.

AUSTRALIAN WILD FLOWERS.—The *Sydney Morning Herald* of November 4th, says:—"Miss Marianne North, who came to these colonies to paint specimens of Australian wild flowers, has, so far as this colony is concerned, completed the agreeable task which her combined admiration for nature and art constrained her to execute. During her stay Miss North travelled through the district of Illawarra, visited Camden Park, and also the residences of several families in the Blue Mountains and other



localities, painting as opportunities permitted her the distinctive flowers which she not only met with on the ordinary thoroughfares, but explored hills and valleys in quest of. The lady does not intend the boundaries of Australia to circumscribe her present intentions. Her desire is to paint, as far as is possible, the wild flowers of the world, and she has now proceeded to Victoria to secure for it that furtherance which her devotion to her task is likely to acquire.'

#### SELECTION OF VEGETABLES.

FOR the information of the correspondent who writes under this heading at page 30, I may state that I placed Giant White Runner Bean, Shorthorn Carrot, Wheeler's Tom Thumb Lettuce, William I. Pea, and Green Gage Tomato, first of their respective kinds, because I could answer from experience as to their merits in the majority of cases. To make matters more simple for your correspondent, I may say Giant White Runner Beans when used in that tender state when the pods are nearly full grown, but the beans hardly formed, are as green as desirable when cooked. Shorthorn Carrot is more suitable for all soils and situations than any other variety, as it comes more quickly to maturity and does not require such a depth of soil as the long varieties. A hundred plants of Wheeler's Tom Thumb Lettuce may be grown either in frames or out of doors at any time of the year in the same space as would be required for three dozen of the ordinary Cos varieties, and its little heads will be found more serviceable and high-flavoured than any other that can be grown in the same time or space of ground. A Pea like William I. that will come in very early and may be had very late can hardly fail to be a good useful Pea for anyone only growing one variety. Better could be named for particular times, especially for midseason, but considering the season from first to last this Pea could not fail to give satisfaction. Carter's Green Gage Tomato is a general favourite with all who have grown it on account of its prolific habit and rich flavour. Your correspondent has evidently doubts about the Custard Marrow, but as I and many others have proved, it is free-bearing and of very fine flavour.—J. MUIR.

#### THE EFFECTS OF ELECTRICITY ON VEGETATION.

(Continued from page 546, last vol.)

HOW PLANTS GROW.—It has always been an unsettled point as to the precise manner in which liquid sap becomes converted into the more solid fibres and tissues of the plant's structure. The common belief has been that the sap undergoes some kind of elaboration within the leaves, and is then passed back again to commingle with other sap in the stems and branches, by which it is precipitated as a deposit. For such credence there is, however, not the slightest support, for no downward trace of the sap has ever yet been detected, nor would such a proceeding be possible without inverting the natural order of the existing arrangements; but, on the other hand, there is the most indisputable evidence possible, as confirmed by the preceding experiment, that by electrochemical deposition an albuminous fluid can be consolidated into a transparent gelatinous substance, and to those who are conversant with the principle of the "electrotype" or the production of metallic castings, precipitated by electricity from a solution of the metallic oxide, the identity of the two processes will be readily apparent. In the one case the metal is made soluble by being combined with oxygen, and in this liquid state it is placed in contact with a conducting mould, when by withdrawing the oxygen it is again made insoluble, and becomes deposited as a bright reguline metal, taking the exact form of the surface to which it is thus made to adhere. In the other case carbon takes the place of the metal, and by being combined with oxygen it also is rendered soluble, and constitutes the basis of all albuminous compounds. In figures 96 and 97 on page 547 of the last volume this fluid albumen, consisting of "white of eggs," is represented as having formed around the positive electrode (F) only a loose frothy mass, whilst around the negative electrode (E), which indicates the growing condition, it has assumed a specific form—a hollow and somewhat globular ball of jelly-like consistence, attached to which, as a tangent to the central part of the outer surface, springs the diaphragm (C G), which is brought into existence to separate the opposite electrical conditions of the two portions of the electrolysed albumen. On the same principle as the production of this diaphragm by the "deflexion" of force we have a very common but perfectly similar result occurring in our ordinary fishtail gas burners—two oblique jets of gas issuing from cylindrical passages strike together, by which they are then spread out into a flat flame transversely to their own direction, just in the same manner as in the above experiment.

By analysing the structure of a common fowl's egg in conjunction with the preceding phenomena, it affords us a far better opportunity of understanding that which takes place on a more diminutive scale among the cells of plants than, from their minuteness, could possibly be derived from these microscopic formations themselves. Thus, supposing the negative electrode (E) to be surrounded by a ring of positive electrodes in such manner that the force would be converging to the negative centre from all directions, the transverse diaphragm would then necessarily become curved, so as to form an entire bag or envelope around it, just as it occurs in the egg, the shell being lined with a watertight membrane closely adherent to its inner surface. With regard to the shell itself; this, too, is equally represented. Instead of the white of egg in figs. 96 and 97 let some plain water with a few grains of common table salt or a few drops of dilute sulphuric acid be introduced, and the lime out of the ivory (G) under the positive electrode (F) will then be taken up and carried away to the negative electrode (E), upon which it will crystallise, forming a whitish encrustation; but with the white of egg the viscosity of the latter causes the lime to be arrested at the central diaphragm (C G), and there to form a layer of globular lime crystals identical with such as are seen in the hardening shells of crustaceans, such as shrimps, crabs, &c. Within the egg and floating in the albumen is another bag containing the yolk, which is the immediate nidus of the embryo chick. But should this second bag by any accident become ruptured so as to suffer the different contents to mix together, it would be good-bye to all chance of a chicken.

From this it is seen to be evident that it is the relative position which is all-important, and not merely the presence of certain compounds irrespective of their relative places. To secure the contents of the egg from the risk of such injury a most beautiful provision is made, which does not appear to be rightly appreciated. It is generally imagined that the vesicle of air contained at one end of the egg is intended as some sort of temporary sustenance for the bird before it leaves the shell; but this is a mere figment. Its real use is to act as an elastic spring to maintain the contents of the egg as always filling the interior, so as to avoid shaking. Were this air absent and the egg full when cold, the warmth of the bird would cause it to expand and burst the shell, like water-pipes, by the frost; but as air is compressible, although liquids are not, the air shrinks in bulk to make room for it, and then expands again whenever the contraction of the liquid may follow. This same principle has been adopted to prevent water-pipes, casks, &c., from being burst by the frost. In the case of the former a very small indiarubber tube, tightly closed at both ends, is inserted along the interior wherever it may be liable to become frozen; but in the latter an uncorked empty champagne bottle is floated, neck downwards, in the centre of the jar or cask, and retained there either by being tethered to a brick or fastened to a stake placed diagonally across from top to bottom.

Now, as the developing chick requires a supply of carbon out of which to form its flesh, feathers, and bones, &c., we find this supply stored up in the surrounding albumen—the white, in which it floats, and which disappears in proportion as the bulk of the bird increases. But this albumen is also the main food of plants. It has been generally asserted that vegetation derives its entire supply of carbon from the carbonic acid contained in the atmosphere. That, however, is a sweeping assertion that seems quite inconsistent with known facts. One of the richest manures that can be applied to plants is bullocks' blood, the serum constituting the greater part of which is albumen. All animal and vegetable material is also composed of albuminous compounds rich in carbon; and as these constitute the food of plants, it can only be by furnishing them with a carbon compound they can readily and rapidly appropriate.—W. K. BRIDGMAN, *Norwich*.

(To be continued.)

#### SENECIO SPECIOSUS.

THOUGH not a novelty in the strict sense of the word, it is only recently that general attention has been directed to this plant; and as from its attractiveness it is likely to become a favourite both for indoor and outdoor decoration, a few remarks upon the history connected with the species and the ornamental value of the plant may not be devoid of interest.

First, regarding the native country of the plant there has been great confusion, for China, Mauritius, and South Africa have each been assigned as the portion of the globe whence it was first obtained. However, the claims of the last-named continent have now been fully established, and it is probable that if plants had been sent to England from China or Mauritius they had been previously introduced there from South Africa. Mr. N. E. Brown of Kew has devoted some attention to the history and synonyms

of species, and with satisfactory results, for the name given above is now accepted as correct, and the plant was figured under it in the "Botanical Magazine" a few months since. Johnson's "Gardener's Dictionary" gives the date of introduction as 1789, but the plant appears to have been cultivated as early as 1732 in Dr. Sherard's famous garden at Eltham; but whether it has continued in this country since that time is uncertain, although figures have appeared at different times in Andrews' "Botanist's Repository," the "Botanical Register," Loddiges' "Botanical Cabinet," and lastly in the "Botanical Magazine" in 1880. It has been described under the names of *S. pseudo-China*, *S. concolor*, and *S. concolor* var. *hispido-scabra*, all of which have been rejected in favour of *S. speciosus* as already stated.

It seems strange that a plant of such merit should have been known for about 150 years without becoming popular, but, like many other old introductions that have now almost disappeared from gardens, it has been long neglected, and the nurserymen are again bringing it into notice. It possesses the recommendation of being half-hardy in England, consequently it deserves a foremost place amongst the plants in the so-called mixed border, where it will flower during the greater part of summer. Grown in pots, too, it forms a valuable and attractive addition to the greenhouse or conservatory, in which positions the flowering period is greatly prolonged. In habit the plant is moderately dwarf and compact, the radical leaves forming a rosette-like tuft round the stem; they are somewhat thick, inversely lance-shaped, the margin being toothed or lobed. The flower stems rise to about a foot in height, and bear numerous flower heads (capitula) of narrow strap-shaped, rich purplish magenta florets, each head measuring about  $1\frac{1}{2}$  inch in diameter, and disposed on the stems in a corymbose manner, and are altogether rather suggestive of the *Cineraria*. However, it is unquestionably a handsome plant, and being of easy culture is worth the attention of all.—L.

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 17. NEW SERIES.

THOSE who deal in statistics have, I believe, attempted a half-serious calculation of the quantity of dirt the civilised human being swallows each year in taking his customary meals, even where the cooking arrangements are first-class; and if a computation were possible of the number of insects we dispose of unconsciously, some persons might be more surprised than pleased. At the season of Christmas it is not agreeable to discover that what as first you took for a Plum stone left by accident in your slice of pudding is the carcase of a beetle that had been feeding in one or other of the articles that go to make up that seasonable dish. Probably a good proportion of the insects we eat, or narrowly escape eating, are beetles, as imago or larvæ. The latter, happily, if cooked up often leave no trace, nor have they a flavour usually that would distinguish them from the substance in which they live and feed. In the group of beetles that we now proceed to examine there is one species, *Tenebrio molitor* (fig. 10) we may well regard with an unfriendly eye, as it frequents flour or meal, upon which the uninviting larva feeds, and there hides securely; but it may be consolatory to reflect that mealworms are at least useful to bird-fanciers!

The second group of the beetles that are placed in the section Heteromera, the small middle section of the coleopterous order, are called Atrachelia—that is, "without a neck." The hind part of the head appears as if sunk in the thorax, and the wing-cases are hard, not flexible as in the Trachelia, noticeable readily in the Oil and Cardinal beetles already described. One or two of these species resort to flowers, but the bulk of them haunt dark and damp spots, and gardeners have had at present no reason to complain of this group. One species, however, rejoicing in the appellation of *Melandrya caraboides*, occurs in old Willow trees, larvæ and beetles together, the beetles having this curious habit of living for a short time in the burrows of the larvæ, afterwards taking excursions in the air from tree to tree. They are about two-thirds of an inch in length, with flattened bodies and blackish wing-cases; the larvæ are slender and muscular. It is not a sufficiently common species to do any injury to Willows, compared with such insects as the Musk beetle and the Goat moth. A curious and allied species, only about half the size of the preceding, is *Orehesia undulata*, so named from its power of taking leaps or skips, which seem to be rather objectless, and which are performed by means of the long spines on the hind legs. In colour it is reddish-yellow chequered with black. Their favourite food is moist Boleti growing upon trees in woods or damp places, and Mr. Curtis when hunting them found he could only capture specimens by pushing a net close to the trunks.

Sombre in colour and unattractive in appearance, veritable

"black beetles" are those of the genus *Blaps* (fig. 11) one of which—*B. mortisaga*—has received the ominous name of the Churchyard Beetle. This does, with its congeners, haunt cellars and damp places underground, and so I can quite understand that it may occur in church vaults or catacombs. Both the beetles and their larvæ are harmless to garden produce, though they may sometimes be found in pits; the larvæ are similar in shape to the mealworm, but much larger. It is one of the curiosities of medical science that the larvæ of one species or other of *Blaps* have in several instances been thrown up from the human stomach; how they got there and lived for a time is puzzling. The beetles have such strong vitality that they will revive after being long immersed in spirits of wine. In their movements they are so tardy as to suggest that they suffer from chronic rheumatism! Leaving these we pass to the Tetramera, the third great section of beetles, having the tarsi apparently four-jointed, and containing swarms of species, which naturally break up into three grand divisions. These beetles are commonly diurnal in habit, particularly active, and for the most part feeders upon vegetable substances, though a few are predacious. We have seen, in groups of beetles already noticed, various species that do mischief in gardens, orchards, and fields; we come now upon a multitude of species, often small in size, but highly destructive and difficult to destroy or keep in check. Especially is it so with the long-nosed or beaked beetles, to which belongs the general name of weevil, the Rhyncophora, first division of the Tetramera, and readily distinguishable by the head being always more or less lengthened, the antennæ standing



Fig. 10.—Larva and imago of *Tenebrio molitor*.



Fig. 11.—A cellar beetle (*Blaps obtusa*).

out prominently upon the beak or snout. Though as a group they are thus easily recognised, the species are many of them exceedingly like each other in form, size, and colour. Writing concerning the weevil tribes Mr. Stavelcy aptly remarks—"No part of a plant is secure from the attacks of weevils, for one species devours the green and soft parts of the leaves of fruit trees, another the bark, another the roots. Some destroy the young buds either of leaves or flowers, while others gnaw their way into and deposit their eggs within the setting fruit, which is to remain suspended till the time of transformation, when 'down will come cradle and baby and all,' and the grub, after remaining for a time sheltered in the earth, will return to the daylight in a perfect state. Acorns, nuts, young Plums are easy to find with the little weevil grubs enclosed, while the sheller of Peas can bear willing testimony to their attention to that part of creation. Some roll up leaves, which they have previously severed from a tree, and deposit their eggs therein; others lay them in the ground 'convenient' to the roots which are to form the food of the young when hatched."

Really, as an ancient and reflective gardener remarked, "When you consider what insects and other things one has to be bothered with it's a wonder that one gets flowers and fruit at all." Fortunately, modern science has supplied us with more effective applications for destroying weevils than were known or dreamt of in the days of our grandfathers, but at the best they would fail were it not that we are also helped by the natural enemies of these beetles. Many are killed, moreover, especially in their early stages, by unfavourable weather. That splendid Indian species called the Diamond beetle, as I may note here, belongs to the weevil family, and, placed under a suitable magnifying power, a goodly number of our British weevils that appear unattractive to the naked eye display beautiful tints on the wing-cases, due to the presence of an array of scales with varied colours. As a rule, the beetles of this group go about their work noiselessly, but it has been found that a few of them can make a long chirp by rubbing the wing-cases against the abdomen.

Before referring to some of the numerous weevils that are objects of dislike to the horticulturist with good reason, I shall mention a species which is undeniably a useful one. It is a small insect with antennæ that are tipped with a club-like end composed

of three joints, and in colour it is a rich brown, the extremity of the body only being whitish. Though not as common as we might desire it to be, this weevil, by name *Anthribus albinus*, is to be seen occasionally in gardens and conservatories, where the females seek out the scale (or coccus) of some species or other, upon which they deposit eggs, the larvæ subsisting upon these insects.—J. R. S. C.

#### THE WINTER HAUNTS OF WASPS.

IN your last issue "A KITCHEN GARDENER" asks for information respecting the winter haunts of wasps. Having spent much time collecting and studying insects, I can, perhaps, give him the information he requires. I believe the chief winter quarters of queen wasps are nests in which they were hatched. I have dug many nests out of banks at the commencement of winter, and there have always been two or three queen wasps hibernating in them. But all do not pass the winter in the old nests; I have often found them under the loose bark of trees, amongst fallen leaves, in sheds, and various places, where they lie up in a state of torpor until the warm days of spring awaken them to life. After a fresh bed of leaves has been made up in the forcing houses in winter time, a queen wasp will sometimes be seen flying about, having been carried in with the leaves and awakened out of its torpid state by the warmth of the house.

If "A KITCHEN GARDENER" thinks of destroying wasps in their winter quarters, I am afraid he will not be very successful, as he might hunt for a whole day and not find one; but every one should be hunted and killed when they appear on the wing in spring time, when they are generally sluggish in their flight, and are easily caught. It is better to pay for them than wait until they have established a colony.—A. BARKER, *Hindlip*.



THE last issue of the *BULLETIN DE LA FÉDÉRATION DES SOCIÉTÉS D'HORTICULTURE DE BELGIQUE* contains a number of reports from the various affiliated Societies, with the names of the officials and the number of members in each. A translation is given of a document recounting the particulars of a botanical excursion in Colorado, containing much interesting information respecting the flora of that region. The eighth edition is also included of the "Correspondance Botanique," the very useful work of Professor E. Morren, which is still more extended and improved than former editions. For naturalists having a wide correspondence such a work is indispensable. The last-named is also published separately at No. 1, Boverie, Liege.

— FROM the report of the *ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY* for the past year we learn, that notwithstanding the rather heavy loss of the autumn Show, there is a balance of £98 to the credit of the Society. About one hundred new members have joined the Society, so that the prospect is rather encouraging. It appears Mr. Hinds, gardener to Lord Wimborne, has offered a guinea towards a silver cup to be given for a stand of *Chrysanthemum* blooms at the next autumn Show—an example it is desirable should be followed by other contributors, so as to render the cup creditable to the Society. Mr. Gower of the Tooting Nurseries has also promised a prize value £5 5s.

— "HAVING to place something fresh on the dinner table every evening," observes a correspondent, "on one occasion flowers of *CYPRIPEDIUM INSIGNE* were used with Maidenhair Fern. I had no idea how effective it would appear, and it has now become quite a favourite. I also place about a dozen blooms in a glass with foliage, and it is equally pleasing. I have a hundred blooms of it left on the plants in a cool house, and I fully mean to make the most of these."

— WE learn that Mr. W. IGGULDEN of Orsett Hall, Romford,

has been appointed gardener to the Earl of Cork and Orrery, Marston House, Frome; and Mr. T. RECORD, Sheffield, gardener and bailiff to C. A. Hanbury, Esq., Belmont, East Barnet.

— A WRITER in Case's "Botanical Index" has the following relative to the *USES OF YUCCAS*:—"The bruised root of all the *Yuccas* were formerly used very extensively by all the natives, at least on the Pacific coast, for making a soapsuds in washing, and at the present time it is not an uncommon sight to see the semi-civilised Indian and her Mexican half-sister still using this vegetable soap, which they call 'Amole,' in the Mexican villages, even as far north as Utah. It certainly possesses the economic advantage of always being handy and ready for use on the desert plateaus of the West, while if these indolent people were to depend upon their own exertions for making their supply in the ordinary mode of making soap there would probably be very little used by them."

— "R. H., *Penzance*," observes that *GARRYA ELLIPTICA* is one of the most graceful of evergreen shrubs. Its chief beauty consists in its long catkins, which in winter hang in elegant tassels from the ends of the shoots. It is a hardy evergreen shrub, preferring sandy loam as its soil. It is best propagated by layers in the autumn, which when taken off should be potted and placed in a cold frame to become established. It may be also increased by cuttings under a handglass in sandy soil towards the end of summer.

— THE schedule of the *BRISTOL SPRING SHOW SOCIETY* states that the next Exhibition will be held on March the 23rd and 24th in the Victoria Rooms, Clifton, when, in addition to numerous prizes in the classes, special prizes of a silver cup value four guineas, two guineas and a half, and one guinea and a half, will be offered by the Treasurer, Walter Derham, Esq., for a collection of *Hyacinths* and *Tulips*. The Banksian bronze medal of the Royal Horticultural Society will also be offered for the best twelve *Hyacinths* in any class except Class 1.

— ONE of the latest additions to the Kew collection is the pretty *BEGONIA SOCOTRANA*, a new species from the island of Socotra, where it was found by Dr. I. B. Balfour in his recent explorations. It has roundish peltate leaves and pinkish flowers, with four or six divisions nearly equal in size. A plant flowered last month at Kew, from which, we are informed, a coloured plate for the "Botanical Magazine" has been prepared. We recently observed a specimen in one of the compartments of the new range, which indicated the character of the plant and its probable value for decorative purposes.

— "PRACTITIONER" sends these observations on *INFERIOR CELERY*—"For many years we have been in the habit of raising a quantity of Celery very early in the season to have it of large size for the autumn exhibitions. In changeable seasons many plants run to seed before they are of full size, but others do not, and, as a rule, we always find these to be very inferior in quality and 'pithy' by November or December. Another batch of plants is raised and planted much later—so late, indeed, that many of them are not more than half or three parts grown by November, and it is very rarely that we find a single 'pithy' head in this late batch. When Celery makes rapid growth during the hot weather of August and September it is seldom sound, but when the growth is made in the colder weather of October and November it is always solid."

— A CORRESPONDENT writes—"Complaints are very frequently made about the ridiculous manner in which the *NAMES OF PLANTS* are lengthened in catalogues, and that there are just grounds for such complaints is well shown by the following names from a catalogue selected at random from some dozens. *Antirrhinum majus nanus picturatum*, *Eschscholtzia californica grandi-*



flora carminea, and *Petunia hybrida grandiflora robusta nana flore-pleno*. If nurserymen go on in this way any descriptions of such plants will be superfluous, for the names can be lengthened in proportion to the real or imaginary distinctive qualities."

— FROM a very interesting pamphlet by Mr. Walter Hill on the Queensland timber we extract the subjoined note concerning *ARAUCARIA BIDWILLI*, the Bunya Bunya Pine—"A noble tree inhabiting the scrubs in the district between Brisbane and the Burnett Rivers. In the 20th parallel it grows thickly over a portion of country in extent about thirty miles long and by twelve broad. The wood is not only very strong and good, but it is full of beautiful veins and capable of being polished and worked with the greatest facility. The cones produced on the extreme upper branches, with their apex downwards, are large, measuring 9 to 12 inches in length and 10 inches in diameter. On coming to maturity they readily shed their seeds, which are 2 to 2½ inches long by 1 inch broad, sweet before being perfectly ripe, and after that resemble roasted Chestnuts in taste. In accordance with regulations issued by the Government the tree is not allowed to be cut down by those who are licensed to fell timber on the Crown lands, the fruit being used as food by the aborigines. The trees produce some cones every year, but the principal harvest happens only every three years, when the blacks assemble from all quarters to feast on it. The food seems to have a fattening effect upon them, and they eat large quantities of it, after roasting it at a fire. Contrary to their usual habits they sometimes store up the Bunya nuts, hiding them in a water hole for a month or two. Here they germinate, and become offensive in taste to a white man's palate, but are considered by the blacks to have then acquired an improved flavour. The taste of the Bunya when fresh has been described as something between a Chestnut and a raw Potato."

— MR. A. WOEIKOF of St. Petersburg writes to *Nature*—"I have found LARGE VARIETIES OF BAMBOO cultivated on a great scale in Northern Nippon, where the winter temperature is certainly much colder than in England. The northernmost place where I found them was the vicinity of Yokobori, about 39° 12' N., at a small distance (twenty-five miles) from the west coast. The nearest place to the south where observations were made is Niigata, 37° 55', and to the north Hakodate, 41° 46'. The coldest month has a temperature respectively of 33° 0 and 27° 3 F. Yusawa being situated about 450 feet high, and in the interior, the coldest month there must have not over 30°, and a heavy snowfall is the rule every winter. Again, on descending the dividing ridge between Jukussina and Yonesawa, I first found large Bamboo plantations near the last place, about 1000 feet above sea level, and 37° 55' N. Between here and Niigata the temperature of the coldest month must differ by about 3°, the latter place being situated near the sea. This gives about 30° F. for Yonesawa, or about the same as at Yusawa. Now in Great Britain, the mountainous districts excepted, the mean temperature of the coldest month is nowhere lower than 36°."

— FROM the same source we learn that last year Count d'Amigo established A TEA PLANTATION upon his estates, situated near Messina. The Tea plant is said to thrive perfectly well there, and its leaves are said to be in no wise inferior to those of the Chinese plant. In order to dry them in a rational manner, and to prepare them for export as well as for home consumption, a Chinese expert is to become the manager of the Messina plantations.

— RELATIVE TO VINE CULTURE IN ALGERIA "J. T." sends us the following:—"Some Vine-growers, whose vineyards in the south of France the phylloxera had destroyed, carried their experience to the not dissimilar climate of the South Mediter-

anean shore, and they have been abundantly rewarded. The present acreage devoted to vineyards is 49,385, of which 5,630 acres were planted in 1879, all but 106 acres being the work of the French settlers. The surprise is, not that the natives have done so little, but that the Arabs, to whom wine is prohibited by the Koran, should have overcome their scruples so far as to devote 103 acres to the cultivation of the Grape. The wine produced in the colony increased from 7,255,204 gallons in 1878 to 7,612,000 gallons in 1879; and there is reason to believe that Algerian wines will soon take a good place in the French markets. Those produced in the romantic province of Constantine are said to resemble the Spanish wines, which are now so largely carried across the Pyrenees for blending with and strengthening the lighter wines of France."

#### ASHLEAVED KIDNEY POTATOES.

THIS Potato is second to none when well grown. Some five and twenty years ago I lived in County Down, near a farm on which it was extensively and successfully grown. Henry Harrison, Esq., owner and occupier of the farm, finding that this Potato gave him a more profitable return than any other crop, it was by him cultivated with great care and attention. The farm of Mr. Harrison rests on and overlooks the Bay of Belfast. It was near a good market for early produce. Buyers from Glasgow and a daily boat to that city from Belfast helped the market of the Irish town very much. One year Mr. Harrison himself went to market with the first digging of his early Ashleaved Potatoes, weighing 20 ewt., which were sold on entering the market for £40 to a Glasgow merchant. Mr. Harrison telegraphed to his land steward for a second ton to be dug and sent the same day to the Glasgow boat; and that night Mr. H. returned from market with £80 for 2 tons of his early Potatoes.

On this farm all the leaves of forest trees were gathered to mix with the manure for the Potatoes, as it is well known that decayed leaves containing a large proportion of potash are excellent food for Potatoes. In digging up the crop the largest Potatoes were placed in sacks for market, the second-sized tubers were kept for seed, and the small ones (the chats) were carefully gathered and preserved. The seed tubers were kept out of doors and well greened. In autumn the centre eye in every set became a bud about the size of a Kidney Bean. Great care was taken in handling the sets not to break off a single bud, as the Ashleaf Kidney does not readily produce a second bud. Before frosts came the seed Potatoes were carefully spread on the floors of a very extensive shed just to touch one another, one Potato deep. In this state they were covered with dry decayed leaves, and lay there all the winter. I called once to see them in their winter quarters about the end of February. A few of the most prominent eyes were appearing through the covering of leaves like forced Asparagus, and I found some white roots creeping below. The land in which they were to be planted was deeply ploughed, well wintered and manured. The manager of the farm was in no hurry about planting. He waited till fine weather had warmed the soil slightly. When the planting time came the sets were handled as gently as if they had been eggs, and carried in hand-baskets from the shed to the field. The Potatoes so carefully prepared and planted grew vigorously, yielded large crops, which realised the highest prices at the Belfast market. The Potatoes were hurried into the market while prices were high. If there were more of the second size of Potatoes than were wanted for seed for another year they were sold as seed Potatoes in the autumn. The chats, as I have said, were carefully gathered and kept, and at the proper time planted in land not specially enriched to produce seed Potatoes of the medium size.

Those who grow kidney Potatoes should procure their seed in autumn and preserve them carefully through the winter, and never allow an eye to be rubbed off. What gaps in rows and what disappointments in crops arise from seed bought at seed shops in spring! In planting all Potatoes it should be remembered that the manure does more good above the seed than below it. The roots come from the uprising shoots and burrow amongst the manure.—A. PETTIGREW.

#### THE ROSARIAN'S YEAR BOOK FOR 1881.

THERE are two Rose annuals which many rosarians read with much pleasure and profit—the one sent out by Mr. Wm. Paul, the other the modest little volume edited by the Rev. H. H. D'Ombraim. "The Rosarian's Year Book" (Bemrose & Sons), improves at each

issue. The writers are masters of their subject, and even experienced Rose-growers may learn something from their papers. Mr. George Baker's two articles are particularly suitable. The first one, "On the Effect of Severe Winter on the Unripened Wood of the Rose," is very much a reproduction of this writer's notes on this subject to the *Journal of Horticulture* last spring. His second article, "On the Cultivation of Roses, Especially on their Own Roots," should be carefully read and mastered by every young rosarian. After giving his opinion upon nearly every kind of stock upon which Roses are now worked, he comes to the conclusion that the best mode of growing Roses is upon their own roots. Now some of our great growers say that many Roses do no good on own roots; it would be well then, I think, for the National Rose Society's Committee to make out a list of those kinds which can not only do but thrive better without the support of a foster-parent. Mr. Baker recommends the use of a plant-dibber when planting these cuttings, so that the ground may be rendered even and firm. I must say that I have been more successful when planting them firmly in trenches, in a thickish layer of sharp river sand. I find four out of six grow. I put in last September about seven hundred of these cuttings, and they look exceedingly well.

Mr. B. R. Cant has a few pithy remarks on "Rose Stocks and New Roses." After thirty years' experience he has come to the conclusion that only two kinds of stocks are necessary—for dwarfs on good Rose land the Briar cutting, on lighter land the Manetti. In the autumn 1879 Mr. Cant sent me at my request three hundred of his Briar cuttings, and I budded about two hundred last summer (all that survived of them the cruel winter, owing to my man's neglect). As Mr. Cant says, it is "more certain when budded." That it produces, too, blooms just as good as the seedling Briar I can testify. I have Charles Lefebvre bought in the autumn of 1879 on Manetti, seedling Briar, and Briar cutting stocks, and grew them in parallel rows; but by far the best blooms I cut in colour, form, and substance were from the Briar cutting row. On new Roses Mr. Cant does not say much, but to judge from his few words he, like the parrot of legend, *thinks* a good deal! He fears that English Rose-raisers may, unless they be more careful, eventually deserve the reproach which is so freely and justly thrown at the continental raisers. Mr. Cant is, perhaps, a wee bit too hard here upon his English brothers, and he might, I think, have mentioned four or five more good and distinct English-raised Roses of the last year or two. Does he not respect Mrs. Laxton for instance?

Mr. George Paul tells us in his paper "The Type of Tea Roses to be Encouraged," and good reading it is. What so practical a cultivator says must command attention and respect. However, I do not agree with him in thinking that we especially want deeper red colour among the Teas. A box of Teas is spoilt in my opinion by a June or July Madame Lambard, and was always spoilt by Cheshunt Hybrid. Madame Lambard in September is all very well; and what a grand grower and free bloomer she is, and, for a Tea Rose, hardy! At the end of his paper Mr. Paul writes, "What would be our perfect type of a real Tea Rose? Bushes which have stood unprotected the winter through in bloom on July 1st out of doors, each in its variety covered with fifty or sixty large blooms of the shapes of Alba Rosea, Marie Van Houtte, Catherine Mermet, Madame Falcot, Niphetos, Souvenir d'Elise, and Maréchal Niel, but of all conceivable colours of the rainbow; and this scene to be repeated till the first frosts come to drop the *many* blossoms as they now do the *few* single flowers of our Tea Rose bushes." "A pleasant dream," he says. Yes, but may it be fulfilled!

Mr. J. E. Ewing's article on "Rose-growing in Light, Gravelly, or Sandy Soils," I have read with pleasure, profit, and with "fellow feeling." But when Mr. Ewing (who is very strong on "Don'ts") says, "Don't attempt to grow Roses for exhibition on light soils unless you are prepared to go to considerable expense," I say, Do under certain circumstances and conditions—*e.g.*, Roses on their own roots delight in light rich soil, also Roses on Manetti; and if amateurs would only be economical, after the example of the Chinese, and take care of every bit of every sort of manure, their light soil will soon be rich enough to grow even exhibition blooms.

Mr. Mawley's meteorological notes are fuller and more interesting than ever, and I only hope that Mr. Cranston will be more satisfied than ever with his marvellous success at the Rose shows last year, now that Mr. Mawley has told him the reason of that success.

The other articles in the book are as follows—"The Rose of Poetry," by the Rev. Alan Cheales; "An Amateur's Experiences," by the Rev. H. B. Biron; "The 1880 Election of Tea Roses," by Joseph Hinton, Esq.; "Handy Bandy," by G. P. Hawtrej, Esq.;

"Some Roses in the North Country," by E. R. Whitwell, Esq.; and "Roses in 1880, with Notices of the New Roses of the last Two Years," by the Editor.

It only remains for me to advise every reader of the *Journal* interested in the cultivation of Roses to at once order the book. It is really too good for a shilling.—J. A. W.

### THE FROST.

THE frost during the week has been extremely intense, and in some districts unusually severe. The temperature in London may be seen by our meteorological observations on page 62. The Thames is covered with floating ice. On Tuesday drifting snow and a violent east wind prevailed. The day will long be remembered in London and almost all parts of the country for its extraordinary inclemency. Gardeners during the week have found great difficulty in maintaining the temperature in forcing houses, and all ordinary outdoor work is stopped. We have received letters from various districts giving records of the frost, but in some cases it is difficult to determine whether the readings of the thermometer have been taken or the "degrees of frost" counted. The former is the correct mode, and should be adopted by those who send information on temperatures.

Mr. J. Witherspoon, writing from the county of Durham, observes—"On the evening of the 14th inst. the thermometer registered 6° below zero, Fahr.; the night previous the mercury stood at 11° Fahr.; and the night following (Saturday) at 8°. The fruit trees &c., being partly protected by snow, have not, I think, taken much harm." Mr. B. Cowan, South Shields, states that "snow has fallen at frequent intervals since the 11th inst., and there is now an average depth of 8 inches. The lowest temperature registered was 4° Fahr. on Sunday last." Mr. W. Craig, Lambton Castle Gardens, Durham, writes, "Severe frost commenced here on the 11th inst. and has continued since, the lowest temperature having occurred on the 16th inst., when 7° below zero was registered." Mr. G. R. Allis, Old Warden, Biggleswade, also states "that the frost commenced severely on the 11th inst., snow having fallen, but not in great quantity. On the 13th, 14th, 15th, 16th, and 17th insts. temperatures of 19°, 12°, 11°, 15°, and 8° were respectively registered." "DELTA" writes from Gloucester—"It would be interesting if statements of the temperature in different parts of the country, both in elevated and low situations, were given by correspondents. Here, in a low situation in the Severn Valley, the minimum by a compared thermometer properly placed was on the night of the 14th 9° Fahr., the max. on the 15th 21° Fahr., the min. 7.5° Fahr." Mr. A. F. Barron, of the Royal Horticultural Society's Gardens, Chiswick, states that "the frost is intense; the lowest temperature on Monday night last was 5° Fahr." Mr. W. Taylor, Longleat, writes, "We have registered the following temperatures here:—Saturday morning at 4 feet from ground 4°, and the same on grass; Sunday 11° and 6° on grass; Monday 12°, and 7° on grass." Mr. Thos. Nicol, writing from Fifeshire, observes, "The frost is now more intense here than it has been for many years, but the great depth of snow will serve to protect plants considerably." A correspondent in Ireland states the lowest reading of the thermometer up to Sunday last in Munster was 22°, or 10° below freezing point. In the neighbourhood of London low temperatures have also been recorded; for instance, we learn that in Kent one reading gave zero as the lowest temperature, while a few degrees above that have been registered in Surrey, Middlesex, Essex, and Berkshire. The following low temperatures have also been recently recorded:—At Ludlow, zero; Darlington, 10° below zero; Newcastle, 10°; while at Dundee the temperature has ranged from 9° to 2°. In Orkney it is reported the snow is in some places from 12 to 15 feet in depth. To-day (Wednesday) the temperature has risen considerably; in London the thermometer registering 30°, with drifting snow at intervals.

### SALTWOOD VICARAGE, NEAR HYTHE.

A CHALKY district is not the locality in which to look for what are ordinarily called American plants. The sandy and peaty soils of the Surrey uplands in the neighbourhoods of Ascot and Bagshot are the places with which we naturally associate them. The grand establishments of the Waterers and others are so well known that there is little use in saying anything concerning the luxuriance and beauty which characterise the Kalmias, Azaleas, Rhododendrons, &c., which there flourish so vigorously; but chalk is so distasteful to the whole tribe that it is simply misery to see the lingering decay and death to which they seem doomed wherever chalk exists. I know that they will flourish in strong loam, as I have seen them very luxuriant in such soils, but in chalk lands never. It will therefore probably be a surprise to many of your readers to hear that one of the most charming American gardens that I know of in the south of England is in the very midst of the chalk downs which stretch all through our county; and that within a couple of miles of the Channel, where storms do grow and breezes blow, may be seen a valley most beautifully planted, and whose floral beauties are thoroughly appreciated by the visitors to Folkestone, Hythe, and Sandgate, especially if they happen to be



there in what is an unfashionable time of the year, but withal in many seasons a pleasant one—the month of May—viz., the American valley in the grounds of Saltwood Rectory.

Some years ago the living of Saltwood was held, along with several other very good things, by a dignitary of the Church who came under the lash of Mr. Punch for the nice little pickings he had managed to accumulate. But none of these things in the least moved him. He thought that those who win may laugh, and so he enjoyed the jokes that were passed upon him, and who, amongst other good points in his character—and he had many—was a great lover of his garden. Finding this old apparently disused chalk pit in the grounds attached to the rectory he determined on converting it into a scene of beauty and luxuriance. Being of some extent and depth, and surrounded by some large trees, the situation was eminently favourable for it. At the bottom were two ponds of water, which of course gave greater facilities for forming a picturesque piece of landscape gardening. On this he planted a very large number of Rhododendrons, Azaleas, Camellias, and some choice Conifers. As years went on he added

to these all the newer varieties as they came into the market; and as the plants increased in size he had the pleasure of seeing the place assume an appearance of beauty that well repaid him for the great expense and trouble that he had been put to. At his death the living came to a very excellent man, but one on whom the horticultural mantle had not fallen, and the valley passed into rather a dilapidated state; and those ruthless invaders of all our most sacred rights, the railway companies, added to this, for they brought the branch line from Westenhanger to Hythe close by it, and consequently tapped the springs that supplied the water, and the result has been that the ponds no longer exist—a very great deterioration of its beauty.

The living has now passed into the hands of a most excellent and thorough-going horticulturist, Canon Hodgson, formerly Vicar of Croydon, where in the vicarage garden he had been able to show how in a limited space the most varied aspects of horticulture could be presented. In fruit and flowers, both indoor and out, he had achieved great success. Of course when he came to Saltwood the Rhododendron valley became the object of special care and

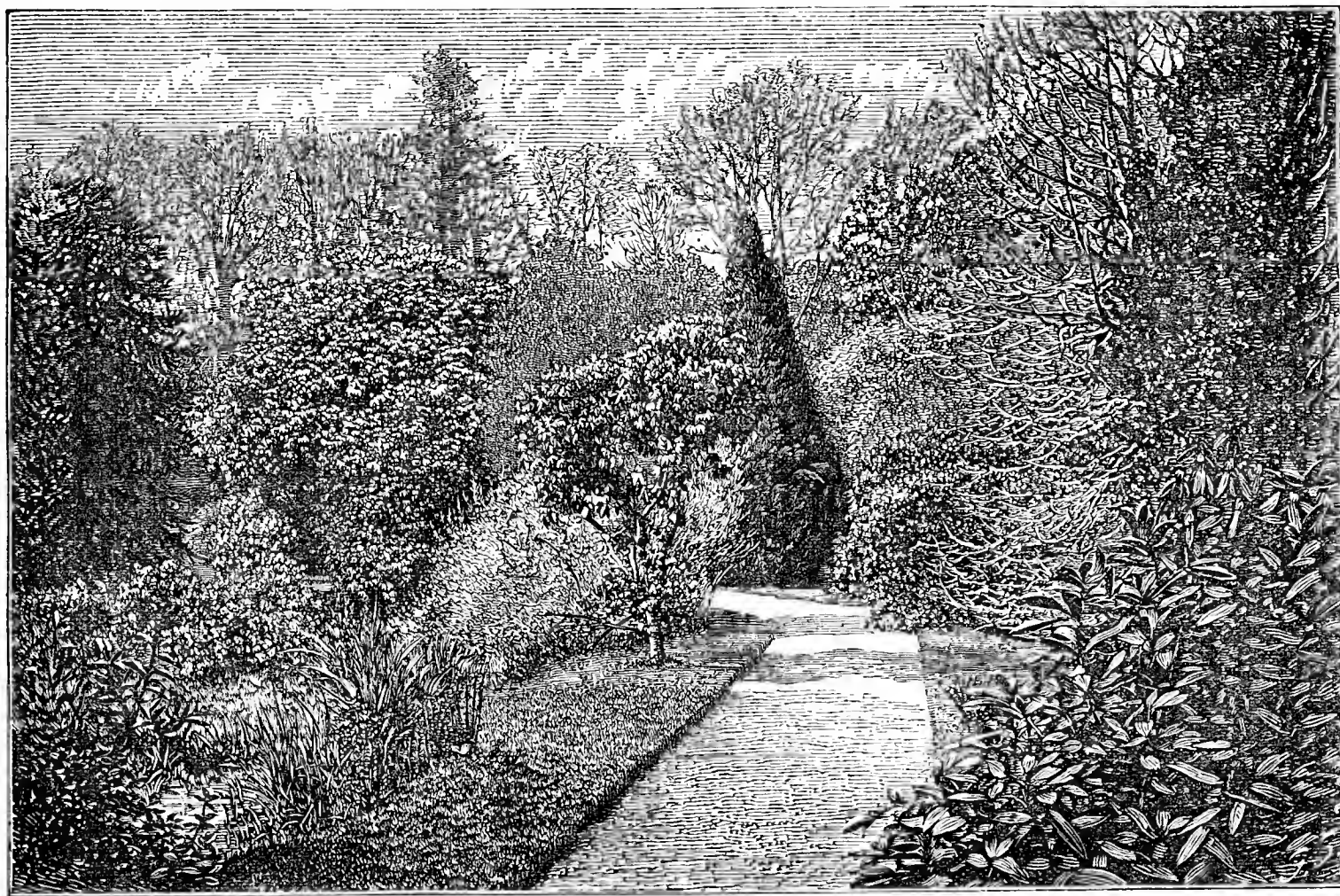


Fig. 12.—THE AMERICAN GARDEN AT SALTWOOD.

attention, and it has once more, save the water, assumed its former appearance. He has, however, felt that, as owing to the increase of inhabitants in the neighbouring watering places and their desire to see its beauties, it became a considerable tax on him, he has very wisely made a charge for admission, all of which, and a good deal more, is expended on keeping it up.

It would be useless to attempt a detailed description of the various trees and shrubs that fill up this very beautiful spot. The accompanying sketch, taken from a photograph, will give a good idea of one portion of it, but its beauties are too many to be shown in one drawing, or indeed many. Here you will meet with Camellias 15 to 20 feet high; Indian Azaleas, *indica alba* forming dense bushes several feet in height; Rhododendrons of all colours growing most luxuriantly; Araucarias and other choice Conifers not as large as one has seen them, but still luxuriant and healthy; the green turf edging the walks well kept; and the whole presenting a scene not easily forgotten.

I am aware that in other places more varied and luxuriant collections of these plants may be seen; but the great charm of this is, in addition to its real intrinsic beauty, that it is found in a

district where it would be least expected, and like an oasis in the desert: therefore the more valuable.—D., *Deal*.

#### SCIENCE IN HORTICULTURE.

THE *Journal of Horticulture* for January 13th contained an article under the above heading, signed "D., *Deal*," and many no doubt began to read it in the hopes of learning something. I did for one, but was more startled than edified by its truly novel argument.

Sir W. Hamilton gives the following definition of science—"A complement of cognitions, having in point of form the character of logical perfection, and in point of matter the character of real truth."

The first paragraph in the article I have mentioned concludes thus—"If science be all that it asserts itself to be, surely by this time we ought to have had something more certain than conflicting statements and fantastic directions as to culture." Will "D., *Deal*," have the goodness to let us know what science has asserted itself to be, when it made the assertion, and to whom?



Then, again, it would be interesting to know according to what logical rule all science is to blame, because some people make "conflicting statements" and give "fantastic directions."

Is it not a pity that one so able to give sound practical advice, well worth reading, should go out of his way to sneer at—what?—not science, but a series of mistakes which he asserts have been made, but which were certainly made by honest seekers after truth? What good is done, or hoped to be done, by the attempt? I pause for a reply. Let me urge "D., Deal," when next under the influence of the *cacoëthes scribendi*, to remember the concluding sentences of his own remarkable article—"A little weighing and waiting will do no harm now-a-days." Had "D., Deal," weighed the meaning of the word science, or waited until he had refreshed his memory by obtaining a correct definition of it from any standard dictionary, he would never have had his latest effusion put into print—at least I hope not.—F. R. B. S.

#### FINE SUMMERS AND SEVERE WINTERS.

UNDER the heading of "Twenty Years' Temperature" Mr. Plant published in the *Times* of the 4th inst. a weather survey of the last twenty years. It contained some statements which seemed to me surprising; for instance, Mr. Plant says that we have only had three severe winters since that of 1860—viz., 1870-71, 1878-79, 1879-80. It is strange he should have overlooked the very severe winter of 1866-67, when the thermometer was reported as registering 2° below zero in some parts of the country, and I think even a greater degree of cold than this in the midlands. Practically I do not think there was much to choose between 1860-61 and 1866-67. The next severe winter was that began on Christmas day, 1869, and lasted into April, 1870, and followed by the beautiful spring and grand summer of the latter year. It is strange that Mr. Plant should overlook these two long and hard winters.

Then as to the summers. Mr. Plant says we have had but four dry hot summers during the last twenty years, enumerating them as 1863, 1864, 1868, 1870. Now 1863 may be fairly classed among the fine summers, though I think it was more remarkable for its long, dry, and warm spring; but surely the summer of 1864 is out of place in the list. I should have expected the really fine dry hot summers of the last twenty years to be classed as 1863, 1865, 1868, 1869, and 1870; those of 1865, 1868, and 1870 being the three grand seasons. Mr. Plant, however, omits 1865 (the first great summer since 1859) and 1869 altogether in his list of fine summers, though he mentions the April and September of the former year as warm. The April was indeed remarkable for its almost midsummer heat. We have had nothing like it since in that month.

Among the cold Mays Mr. Plant omits any mention of the phenomenal weather of that month in 1873 and 1874—cold biting winds in each year, with the thermometer registering as much as 10° and 12° below the freezing point at night. I write entirely from memory, and should therefore esteem it a favour if any of your readers would kindly say whether I am right in my grouping of the fine summers and hard winters of the last twenty years.—M. R.

#### PETTIGREW'S CARDIFF CASTLE CUCUMBER.

"AMATEUR" writes referring to this Cucumber (page 29), "As it is new to me, I should be glad to know what are its chief recommendations, and in what way it differs from Telegraph or any other well-known kind? Is it a distinct cross, or is it only one of our old varieties under another name?"

It seems strange that "AMATEUR" should single out this particular Cucumber from the many that are advertised for the first time in the trade catalogue he refers to. He admits, however, that "it is new to him," and no one will, I am sure, doubt his veracity. It is a distinct cross, and not "one of our old varieties under another name."

If "AMATEUR" will give me his name and address I shall have much pleasure in sending him a brace of this Cucumber in due time for him to say "how it differs from Telegraph or any other well-known leading kind."

The Editor of the *Journal of Horticulture* saw the Cucumber in question growing here last summer and admired it very much.—A. PETTIGREW, *Castle Gardens, Cardiff*.

I BEG to be allowed to inform "AMATEUR" (page 29 of the *Journal*) that, having had many opportunities of seeing Pettigrew's Cardiff Castle Cucumber, I can assure him it is not an old friend under a new name but a distinct variety, the result of a cross between Hedsor Prolific and Telegraph, and I have no

hesitation in pronouncing it to be the best all-the-year-round Cucumber I have seen. Several gardeners in this neighbourhood can corroborate me in this, who like myself have during the last two years seen it growing at Cardiff, and who have anxiously waited for its being sent out.—THOS. CHAPMAN, *Cardiff*.

IN your issue of the 13th inst. "AMATEUR" writes for information regarding this valuable Cucumber. He says that it is new to him, and that he would like to know if it differs from Telegraph or any other leading variety. About four years ago I sent Mr. Pettigrew a few seeds of a good old variety named Hedsor Prolific, which he grew the following summer with Telegraph, and from a cross between these two varieties the Cucumber in question was raised. I had the pleasure of seeing the three varieties growing at Cardiff Castle last summer, and no one who has seen them could fail to notice the superiority of the new variety. I can fully endorse the recommendation given in the trade catalogues.—JOHN LINDSAY, *Ditton Park, Slough, Bucks.*

NOTICING in "Notes and Gleanings," on page 29, "AMATEUR'S" inquiry relative to Pettigrew's Cardiff Castle Cucumber, and having frequently seen it growing during the last two years, I am glad to be able to give your correspondent the information desired.

The Cucumber in question is the result of a cross between Hedsor Prolific—a good old variety raised at Hedsor, the seat of Lord Boston—and Telegraph, and is quite distinct from each variety. The plant is of moderately strong growth with medium-sized foliage; it bears large crops of fruit, and is equally valuable either as a main crop or in winter. The fruits are of medium size, rather more corrugated than Telegraph, have white spines thinly distributed, and have no neck during the greater part of the season and very little during the winter months. I consider it to be the ideal of a good Cucumber for a gentleman's table, but perhaps is not sufficiently large for an exhibiting amateur.—R. CROSSLING, *St. Fagan's Castle*.



#### KITCHEN GARDEN.

POTATOES where pitted or placed together in quantity will require spreading out thinly as room will permit. This applies especially to all early varieties, particularly early kidney varieties, which if once disbudded seldom grow again so freely as at first, often becoming blind to the serious deterioration of the crop. Onions in reeves will, if kept in a close room or cellar, be commencing to grow, and should be removed to an open airy shed or a covered passage open to the north, as no moderate amount of cold injures them provided they are kept dry. Lettuces during severe frost are raised and left with the roots greatly disturbed; they should have immediate attention after a thaw, pressing the soil firmly around them. An early sowing of Peas should be made in strips of turf or in 3-inch pots three parts filled with light soil, placing about a dozen peas in each, covering with light soil, and arranging the pots in an early Peach house until the seedlings are about 2 inches high, then removing to cooler quarters and gradually hardening them off preparatory to planting out on south borders. Early Mazagan Beans may also be similarly treated, placing four in a 4-inch pot; and if planted out about 2 feet apart on a south border as soon as safe, they will come in early. Seville and Leviathan, if required early for exhibition purposes, will answer the same way. As soon as the weather is favourable sow early and second early Peas in deeply trenched well-manured ground, also Broad Beans.

*Forcing Department.*—At intervals of a fortnight or three weeks introduce roots of Rhubarb and Seakale to the Mushroom house, so as to maintain the succession unbroken. Another bed should be prepared for Asparagus, placing the roots there when the heat is suitable—i.e., bottom heat 70° to 75°, or 80° at the commencement, placing about a couple of inches of fine rich soil on the bed, upon which arrange the roots closely together, and cover 2 inches

deep with light soil. If blanched heads are required cover with 4 inches of cocoa-nut fibre refuse, sifted spent tan, or leaf soil, and when the shoots are 2 inches through that they will have blanched stems with green tops, sufficient light being admitted to effect this, with ventilation to prevent them being weak. Sow Tomato seed, Vick's Criterion being one of the best for early culture in pots. To save time sow three seeds in a 3-inch pot, half fill the pots with soil, and when the seedlings have grown a little remove all but one in each pot; place more soil around the one retained, and keep them near the glass to ensure sturdy growth. Potatoes should be planted on prepared beds when the shoots are an inch or two long, and those advanced in growth will need supplying with tepid water. Earth them up when sufficiently grown, ventilate whenever the weather is favourable, and afford protection in severe weather. Carrots, Radishes, and Lettuces sown as recommended should, as soon as they have germinated, have free ventilation on all favourable occasions. This is necessary until the rough leaves are formed, for if drawn so as to have long stems below the seed leaves they are worthless, especially Carrots and Radishes. Sow French Beans in pits or in pots, eight seeds in a 9-inch pot three parts filled with light rich soil. When the young plants are advancing they need a light position, earthing-up when sufficiently advanced, and maintaining a temperature of 60° to 65°. A good supply of Mint should be placed in pots or boxes in a vinery or Peach house, also a few roots of Tarragon.

#### FRUIT HOUSES.

*Pines*.—Plants that completed their growth early last autumn were rested, and then subjected to an increase of bottom and top heat early in December, will now be showing fruit, and they may be pushed on more rapidly by taking advantage of favourable weather to give them increased heat in the daytime, the temperature being allowed to rise to 80° before giving air, and under such conditions it should be maintained at 85° to 90°, closing the house between 80° and 85°. This will greatly assist the flowers and ensure the symmetry of the fruit. Advance the night temperature to 70° and 75° by day artificially unless the weather be dull and cold, when 5° less will be more suitable. The moisture will need to be proportionately increased, but do not damp the pipes when very hot, nor syringe the plants overhead. The bottom heat should be kept regular at 85° to 90°. Examine the plants once a week, and give tepid liquid manure to such as require it. The temperature for fruiting plants should be 65° to 70° at night, with a rise of 5° by day, keeping the atmosphere moist by damping the paths and walls; where the fruit is becoming coloured water must not be supplied. Succession plants require 60° at night, and 5° more by day. Collect leaves for fresh beds, or provide the requisite quantity of new tan.

#### PLANT HOUSES.

*Stove*.—Plants of *Anthurium Schertzerianum* that have completed their growth should be allowed to rest, lessening the supplies of water, and keep them in a house with a temperature of 50° to 55° for the next six or eight weeks. A few *Achimenes* and *Gloxinias* now potted and started will provide a useful and early supply of flowers; when they commence growing place them near the glass. Tuberous *Begonias* that have completed an early growth may be now started and grown on shelves near the glass, and will afford an effective early display of flowers. Well-grown specimens in 6-inch pots are handsome table plants, especially the brightly coloured varieties. A few *Amaryllises* in heat, and encouraged if possible with a little bottom heat, will come in at a time when they will be useful for cutting or decoration. *Aphelandra cristata*, *A. nitens*, and *A. aurantiaca* Roetzli should have a light position, which will heighten the colour of the flowers, similar remarks applying to *Begonias*, *Epiphyllums*, *Euphorbia jacquiniæflora*, *Gesneras*, and winter-flowering plants generally. *Imantophyllum miniatum* should also be in a light position, and must not have too much moisture on the foliage, or the scapes will decay or be seriously disfigured. *Hoya bella* is one of the choicest of plants for affording buttonhole bouquets and for growing in baskets. It is impatient of stagnant moisture at the roots, and should have a position near the glass.

*Gardenias* that completed a growth early and have been rested awhile will now have their flower buds fast swelling. Assist the

plants with a little extra heat and moisture and weak tepid liquid manure. Young plants not infrequently push fresh growths at the time the buds are swelling, which should not be discouraged, as the growths now made set buds and flower later in the season. By having plants in different stages and introducing them to heat as required a succession of flowers may be had all the year round. *Eucharises* which flowered at Christmas should be encouraged to make a strong growth by maintaining a moist atmosphere and supplying weak liquid manure copiously to the roots. When the growth is complete a drier condition at the roots with a lower temperature will induce rest, but water must not be withheld so as to cause flagging, as it exhausts the bulbs. After six to eight weeks of rest a return to heat and moisture will soon cause the flower-scapes to be produced. After flowering is a good time to divide the plants, potting single bulbs in 6-inch pots, five in a 9-inch pot, and so on, employing turfy loam moderately firm, and burying the bulbs entirely.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

*Pruning Fruit Trees*.—Where the pruning is not completed it must no longer be delayed. All standard trees should have their branches thinned out if at all crowded, taking out those with an inward tendency, or that are interlacing, but do not shorten those retained. Those that are weakly, or have not long been planted, may be cut back freely to induce the formation of the requisite strong head. Pyramids should have all lateral growth spurred-in to within two or three joints of the main branches, unless required to fill-up blank spaces, and the leading side shoots can be stopped to within three or four joints according to the strength of growth. The central leading shoot, if strong, may be left 9 inches or more in length. Many amateurs scarcely realise the fact that weakly growth should be pruned hard to induce better growth, the opposite being the case with coarse growth, which if pruned closely is followed by still grosser wood. If miniature trees are required, close pruning accompanied with root-pruning in all cases where the trees are vigorous must be resorted to; but if a heavy crop is desired let the pyramids from the time of planting grow naturally. Most kinds, and the Pear especially, will retain their pyramidal form, and will be in full bearing with little trouble in the way of thinning. Established trees that have been repeatedly pruned but are not fruitful, if thinned-out where crowded but otherwise left unpruned, will frequently without root-pruning form a number of fruit buds on the retained growth for the following season's crop. Root-pruning will not do more than this, though many writers convey the idea that it affects the current year's crop.

All horizontal or fan-shaped Pear, Plum, Cherry, Apple, or Apricot trees should be pruned and nailed-in or retied as the case may be, taking care to loosen all tight shreds or ties. Morello Cherries should be thinned only, these fruiting on the young growth. The leading branches of the others to be shortened where weak, the central or main branch of partly furnished trees being cut back to within one or two joints, where two side shoots should be laid-in, still continuing the central shoot. Spur-back all laterals and foreright shoots to about three joints of the main branches, to induce the formation of clusters of fruit buds. Peaches and Nectarines should not yet be pruned, the object being to retard the blooming period. Properly furnished bushes of Red and White Currants should have all side shoots closely spurred-in, and the leading shoots shortened to near their last starting points.

Black Currants and Gooseberries produce their fruit principally on the young growths, which only require to be thinned out; and they should also be shortened back occasionally to keep the bushes in shape. Where, however, bulfinches and sparrows are troublesome, it is advisable to defer pruning the Gooseberries till the buds are bursting. Thin out the Raspberry canes and shorten those back considerably, and either tie to stakes or to wires strained for that purpose. Digging about the trees should be avoided in all cases as much as possible, as many of the best roots are destroyed thereby. Hoe over the ground, rake off rubbish, and mulch freely with manure.

*Grape Vines on Open Walls*.—These should be pruned at once, late

pruning causing them to bleed, which is very weakening. Where the main branches are permanent cut back all side shoots to a prominent bud near to the base; young well-ripened canes, however, give the best results, and should be gradually laid-in to replace the old rods. The best system is to train the main rods horizontally near the base of the wall or fence, and take up the fruiting canes at about 15 inches apart, cutting down half of these alternately, and fruiting the remainder, these in their turn being cut down to furnish young canes to follow those obtained from the previous year's pruning. Unripened wood must be cut out, and weak leading canes be shortened back. Old Vines badly infested with mildew should be cut down either to near the ground or to the primary rods, and if before growth commences a deep circular trench be cut about 8 or 9 feet from the stems, and the roots carefully separated from the old soil to within a yard of the stems, then relaid into a good fresh compost of equal parts of turfy loam and fresh garden soil, with a liberal addition of road grit, bone meal, and decayed horse manure, they will be encouraged to push a number of strong canes. From these fresh canes great crops may eventually be taken; mildew, where it may re-appear, being easily kept down by dustings with flowers of sulphur.

*Vines in Houses.*—No time should be lost in completing the pruning of these. Spur-in all laterals to within two joints of the main rods, unless the Vines are unfruitful, as in this case the laterals should be pruned to the lowest prominent bud. Do not allow the young Vines to extend too rapidly, especially if the canes are weak. A strong cane about 2½ or 3 inches in circumference may be left 3 feet in length, medium-sized 2 feet, and weak canes 1 foot in length. Remove all loose bark, especially near the spurs, where only a knife should be used, and give a dressing with some insecticide to destroy any insect pests that lodge in the bark. A mixture of 4 ozs. of soft soap, half a wineglassful of paraffin, and half a pound of flowers of sulphur in a quart of boiling soft water, will be found effective for the purpose and easily procured. The mixture should be kept well stirred and be brushed well into the bark, especially where there are crevices. Inside borders should have much of the old surface soil carefully removed, and a dressing of equal parts of loam and manure applied. Now that it is necessary to use much fire heat care must be taken that the borders do not become dry. If the outside borders have been mulched for the winter this should remain on for a time longer, but uncovered borders ought to receive liberal dressings of partially decayed manure. Prior to this the surface may be lightly stirred with a fork.

## THE BEE-KEEPER.

### SHOULD BEES BE BRANDY BIBBERS?

I PRESUME Mr. Cheshire is a teetotaler; if so he has my sincere respect in doing battle so valiantly against any approach to mimicry among bees of the abominable tippling habits of our people. I think, however, he need be under no apprehension of our bees suffering from this evil. The modicum of spirit which I recommended could not possibly do bees the smallest fraction of injury; and he has certainly conjured up a man of straw for the pleasure of adroitly knocking him down. Moreover, I was not thinking of warming bees by suggesting the use of a small quantity of brandy. It was only as a medicinal improvement that I recommended it at a time when damp and dysentery are the bees' worst enemies. I certainly was not thinking of brandy as assisting in heat-formation or as food. Thanks all the same for Mr. Cheshire's remarks, which I recommend all human tipplers to read attentively.—B. & W.

### NOTES ON BEES IN THE NORTH OF IRELAND.

FOR the assistance of amateurs who wish to practise modern bee-keeping, I will relate how I commenced and how I have succeeded with the valuable aid of this Journal. About five years ago I obtained a good first cast, and kept it two years before I took any honey from it. By that time I had three or four stocks. In the meantime I purchased "Bee-keeping for the Many," where I obtained full details how to make a Woodbury hive. I con-

structed one, and in the following summer I placed the first swarm in it by first hiving it into a straw skep, tilting the Woodbury up 2 inches on a sheet on the ground. I then took the straw skep containing the swarm, placed it quickly on the sheet about 1 foot from the Woodbury, and the bees at once passing into it. This was done about 7 P.M. on the day they swarmed. I knew I must have something as a guide for them to build straight along the bars, otherwise, as I have seen since, they would have built anywhere on the frames. At this time I had never seen comb foundation, but I had plenty of real comb in store, which I cut in strips and secured to the upper bar with melted wax. The bees have done well ever since, and this season I had abundance of honey. In July I took four frames from them full from top to bottom, and in September I took three more, leaving plenty to support them during winter. I had all my honey from the bar-frame by the combination principle—a system I admire, as all the honey I took this season was as pure as it could have been from sectional supers. I took the two end bars in each side of the hive, placed four in their places, and removed them again when filled. If these had been frames with sectional supers the result would have been the same as sections on the top. One of these section frames I saw this autumn, and I am certain the system can be much easier managed than top sections.

To prove this system more fully I had a combination hive made this autumn 2 feet long, 11 inches wide, and 10 inches deep, inside measurement. I have a dummy in the centre in the meantime where I intend to place a queen-excluder, so then the bees will be breeding in one end and storing honey in the other, where I can place whole frames or sections or both. I had my new hive made with the latest improvements, such as zinc slides. The frames are across the entrance—the reverse of the Woodbury. I have a saw mark in each top bar one-eighth of an inch wide, so that I can push the thick comb foundation up through it and wax it on the upper side. It is impossible for the bees to break it off if properly fixed in this way. I have span-roofed covers for all my hives down to the floorboards, and 8 inches on the square above the top, so that I can either super or not. I give them three coats of green paint with varnish, and they are really attractive in the garden.

On the whole last season was only an average one for bees. April, May, and June were cold; July was wet with much wind—so much so, indeed, that many weak bees around here never cast at all. August and a fortnight of September were very fine indeed; in fact, it was all we had for a season. Messrs. Carr and Abbott's (of the British Bee-keepers' Association) visit will do much good I believe, as they created a great interest in modern bee-keeping here, especially in the bar-frame, which was very little known in these parts.—COMBER, Co. Down.

### DORSET BEE-KEEPERS' ASSOCIATION.

THE annual meeting of this useful and growing Association was held on the 11th inst. The chair was taken by the Worshipful the Mayor of Dorchester (W. Durden, Esq.), who was supported by the Rev. H. Everett, Mr. W. H. Dunman, jun., of Troytown (the Honorary Secretary), and Mr. T. Coombs. There were also present the Rev. J. Stanton (Coombe Vicarage), Mr. M. C. Weston, Mr. J. Brown (Maiden Newton), also several ladies, including Mrs. and Miss Brymer, Mrs. H. Everett, Miss Hawkins, and Miss Foster. The Chairman, after stating that the object of the Association was the encouragement, improvement, and the advancement of bee-culture in the county of Dorset, particularly as a source of industry and profit among the cottagers and others in the lower ranks of life, called on the Honorary Secretary to read the report, from which the following is an extract:—

"The Committee have felt great pleasure in presenting their fourth report, because they are able to speak of a considerable increase in the number of members as compared with last year, and to present a satisfactory balance sheet. The exhibition of honey at Weymouth in August last was the best ever held in Dorset, and proved beyond all question that our county offers a fine field for apiculture. One exhibitor sent in 400 lbs. of honey, and another almost as much, the greatest weight taken from a single stock being 89½ lbs. The quality, too, was all that could be desired, and as the greater part of it was in small sectional supers it met with a ready sale. The exhibition stirred up a spirit of inquiry, which resulted in a gain of several members and opened a market that will greatly encourage local bee-keepers. The British Bee-keepers' Association granted a silver medal, a bronze medal, and a certificate for this exhibition. The first-named was won by Mr. W. H. Dunman, jun., of Troytown, and the other two prizes were awarded to Mr. Antell and Mr. Stickland of Puddletown. Efforts have been made to increase the number of cottage bee-keepers by holding manipulations at village shows, for the purpose of illustrating the best methods of depriving bees of their honey without resorting to the old and barbarous plan of suffocation



Several cottagers have already become experts, and some of them have done good service for the Association. Mr. F. Cheshire of Acton, one of the principal bee-masters in England, gave a most interesting and instructive lecture at Dorchester last spring; and Mr. J. Brown of Maiden Newton lectured for us at Cerne in November, when our Secretary and other friends lent valuable assistance. Encouraged by past success, and relying upon the generous support of the principal residents of the county, the Committee have made arrangements for putting forth greater efforts in 1881. Mr. Cheshire has been again engaged to give lectures in several towns, and members of the Association have promised to hold meetings in some of the villages during the winter and spring months. The Committee trust that the members will do their best to increase the number of subscribers by explaining to their friends and neighbours the objects of the Association, which are, first, to introduce a more rational and humane mode of bee-culture amongst all classes of the community who are in a position to keep bees; second, to show them how to obtain the largest quantity of honey, time, and labour; third, to induce the cottagers of the district who have not already embarked in bee-keeping to place stocks in their gardens, so that the myriad flowers which now 'waste their sweetness' may be rifled for the benefit of man."

A satisfactory financial statement was also presented. The report was adopted, and several of the above-named gentlemen addressed the meeting.—(*Blandford & Wimborne Telegram.*)

#### LIGURIAN BEES IN NEW ZEALAND.

I HAVE just received a batch of papers from New Zealand, from an account contained in one of which I learn that the Ligurian bee has only just been introduced into that colony. I enclose a paragraph which is cut from the *Otago Daily Times* of September 18th, and which it would seem appeared originally in the *New Zealand Herald*. Our colonial friends seem to me to put forward some novel claims to superiority on behalf of the Ligurian—viz., that they produce fewer drones, and that the queen lays eggs all the year round. The New Zealander is here as usual rather oversanguine, but may it not be possible that in the fine climate of Auckland the queen might sometimes lay at all seasons? What will our friends here say to the wetted sponge which appears to have secured that cool and moist atmosphere necessary for bees? If breeding was going on in the hives water was no doubt necessary. Did it serve any other useful purpose? Perhaps Mr. Cheshire will kindly explain.—M. H. MATTHEWS.

"Among the many varieties of the honey bee few are held in greater esteem than the Italian variety, or, as it is generally called, the Ligurian bee. They are industrious workers, and delight in honey-gathering. In their hives there are fewer drones than in the hives of the common honey bee, and the queen produces eggs all the year round, though the number is considerably fewer in the winter season than during the warm days of summer. After many failures their successful introduction into America was accomplished several years ago, and since then hives of these workers have been largely multiplied. About the time of the American Centennial Exhibition several attempts were made by Mr. Thomas Russell to introduce them to the province of Auckland, through agents he employed in San Francisco. The first efforts were made by sending queen bees, but the inmates of the several parcels of those that were forwarded all perished before reaching this city. As a last effort a hive was sent forward, but it was evident that there was something still to learn to secure the safe transportation of these bees long distances, for they were nearly all dead before reaching Auckland, and the few sickly ones that reached here died a few days after being landed. The expense of these efforts was borne solely by Mr. Russell, an example very different from the suggestion recently made to the Commission on the Colonial Industries. Nor were Mr. Russell's failures to introduce these bees singular, for Mr. A. Mackay of Brisbane, who made efforts to the same end, at the same time was equally unsuccessful to enrich his adopted land. But while the suggestion was made to the Colonial Industries Commission to spend £500 of public money to send a person home to make an attempt to do that in which so many failures had already been recorded, private and patriotic enterprise was successfully accomplishing that for which State aid was being solicited. Mr. S. C. Farr, Secretary of the Canterbury Acclimatisation Society, had already communicated with R. J. Creighton, formerly of Auckland, and now in San Francisco, on the subject, and Mr. J. H. Harrison of Coromandel had also communicated with his brother, Mr. W. G. Harrison, San Francisco, formerly of Auckland, for the same object. As Mr. Creighton is regarded as the official representative of New Zealand in the City of the Golden Gate, both applications came to be referred to him. He made his arrangements accordingly, and the success which has attended them deserves public recognition on behalf of the colony. Mr. Creighton regarded these efforts at acclimatisation as public enterprises, and not efforts for private gain, and acted accordingly. Hives were made upon a new construction, and a place provided, in which was kept a wetted sponge, which appears to have secured that cool and moist atmosphere necessary for bees, so that when they arrived on Thursday, per Australia, they were as lively as possible, and seemed to be in vast numbers. The two

boxes were sent through the Acclimatisation Society here, and entrusted to the care of Captain Cargill at San Francisco, who took them into his own cabin, and daily attended to the wants of his lively colonists. Fresh water was daily supplied to the sponges, and everything done that was requisite for the health and comfort of the bees. The result is an unmistakeable success, and the colonists of New Zealand are deeply indebted to Captain Cargill and Mr. Creighton for what has been accomplished. Mr. Creighton, in his letter to Mr. Cheesman, the Secretary of the Acclimatisation Society, states that Mr. Harrison is not to regard his hive as an object for private profit, but the bees are for the good of the colony, and when swarms are obtained they are to be distributed in the same way that he has been provided with them. On being consigned to the care of the Acclimatisation Society, Captain Cargill made no charge for the conveyance of the boxes, but it will be for the Society or colonists to make some acknowledgment of some New Zealand product for his care and attention to them during the voyage. On the arrival of the steamer Mr. Cheesman lost no time in having the boxes carried to the Museum, and then arranging for their future disposal. The one consigned to Mr. Farra was conveyed free by the s.s. Arawata to Lyttleton, which sailed yesterday; and the hive for Mr. Harrison was despatched per steamer to Coromandel, Mr. Harrison being apprised by telegraph of what was being forwarded. They land here at an excellent period of the year, and in a few weeks food for them will be in great plenty. It is to be hoped that they will receive judicious treatment now that they are safe here, and that soon the yellow-banded bee will be as common here as is now the common honey bee."

#### TRADE CATALOGUES RECEIVED.

- Sutton & Sons, Reading.—*List of Novelties.*  
 William Paul & Son, Waltham Cross.—*Catalogue of Vegetable, Flower, and Farm Seeds.*  
 Charles Turner, Slough.—*Catalogue of Flower and Vegetable Seeds.*  
 Webb & Sons, Wordsley, Stourbridge.—*Spring Catalogue, 1881. (Highly Illustrated).*  
 Dick Radclyffe & Co., 129, High Holborn.—*Catalogue of Vegetable and Flower Seeds.*  
 Hooper & Co., Covent Garden.—*Spring Catalogue.*  
 W. Bull, King's Road, Chelsea.—*Catalogue of Flower and Vegetable Seeds.*  
 James Yates, Stockport.—*Trade Catalogue of Vegetable and Flower Seeds.*  
 Daniels Bros., Norwich.—*Illustrated Guide for Amateur Gardeners.*  
 H. F. Sharpe, Wisbech.—*Catalogue of Vegetable Seeds.*  
 Dickson, Brown, & Tait, Manchester.—*Catalogue of Vegetable and Flower Seeds (Illustrated).*  
 Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds.*  
 Freeman & Freeman, Norwich.—*Economic Gardening Guide and Catalogue, 1881. (Highly Illustrated).*  
 W. Hean, Quick, & Co., Barnstaple.—*List of Farm, Garden, and Flower Seeds.*  
 J. M. Coventry, 111, Gray's Inn Road, London.—*General Seed Catalogue.*  
 The Lawson Seed and Nursery Company (Limited), Edinburgh and London.—*Catalogue of Vegetable and Flower Seeds, and List of Gladioli.*  
 John Laing & Co., Forest Hill, London.—*Catalogue of Garden, Flower, and Farm Seeds.*  
 Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds.*  
 Charles Sharpe & Co., Sleaford, Lincolnshire.—*Catalogue of Flower, Vegetable, and Farm Seeds (Illustrated).*  
 J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*  
 George Cooling & Son, Bath.—*Catalogue of Flower and Vegetable Seeds.*  
 Stephen Brown, Weston-super-Mare, Somersetshire.—*Catalogue of Vegetable and Flower Seeds.*  
 Kent & Brydon, Darlington.—*Seed Guide (Illustrated).*  
 Stuart, Mein, & Allan, Kelso, N.B.—*Catalogue of Flower and Vegetable Seeds.*  
 Bruant, Poitiers (Vienne) France.—*List of New Plants.*  
 Smith & Simons, St. Enoch Square, Glasgow.—*Garden Cultural Guide and Catalogue.*  
 J. C. Wheeler & Son, Gloucester.—*Little Book, or Sheet Seed List (Highly Illustrated).*  
 J. & B. Marsh, Kingston and Wimbledon.—*Catalogue of Vegetable and Flower Seeds.*  
 George Bunyard & Co., Maidstone.—*Catalogue of Vegetable and Flower Seeds.*  
 Walter Ford, Pamber, Basingstoke.—*Select List of Seeds.*  
 F. C. Heinemann, Erfurt.—*General Catalogue, and List of Vegetable and Flower Seeds.*  
 W. Wells, Earlswood, Redhill.—*Seed List for 1881.*  
 Louis Van Houtte, Ghent, Belgium.—*Catalogue of Gesneraceous Plants.*  
 Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Flower and Vegetable Seeds.*  
 Thomas Bunyard, Ashford, Kent.—*Catalogue of Flower and Vegetable Seeds.*

## TO CORRESPONDENTS.

\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Books (W. Brierley).**—The following works will probably suit you—Johnson's "British Ferns," published at this office, price 3s. 6d., post free 3s. 9d.; "Select Ferns and Lycopods," Mr. B. S. Williams, Upper Holloway, price 5s., post free 5s. 6d.; Lowe's "British and Exotic Ferns," price £3 15s.; and Lowe's "Our Native Ferns," price £1 8s. The two last named are published by George Bell & Sons, 4, York Street, Covent Garden.

**Dissolving Horn (J. M. Green).**—If you wish to employ the large pieces of horn for manurial purposes you cannot do better than reduce them in size by chopping or such other means as will answer the purpose better. Horn cannot be dissolved, like bones, with sulphuric acid; but if it is placed in contact with dilute caustic potash the liquid acquires a disagreeable smell, and the horn assumes the form of a jelly, and gradually dissolves.

**Making Asparagus Beds (J. M. B.).**—If you crush the old plaster and mix it with the strong soil it will render it more suitable for Asparagus. Garden refuse of all kinds, wood ashes, and leaf soil would also be valuable additions, and better than rich manure, that would make the soil too wet. Moderately light soil, containing much vegetable and gritty matter, is what Asparagus delights in, and manure is best applied to the surface of the beds.

**Galvanised and Zinc Wire (A. L. N.).**—We are obliged by your letter. The subject to which you refer has been alluded to, and, as you will see, the view you take of the question has been anticipated; but the matter, as you justly observe, is of "theoretical rather than practical interest."

**Blackening Hot-water Pipes (E. Picker).**—We mix lampblack with boiled oil to the consistence of paint, and apply it to the pipes with a brush, and it answers the purpose you name admirably, but in your case it would probably need to be applied annually. We fail to perceive the force of your remark relative to stopping the pores of the iron.

**Communications (E. C.).**—All communications that are suitable for our columns are inserted, although some weeks may occasionally elapse before their publication. It is impossible for us to acknowledge the receipt of all the letters that are sent to us, nor do we undertake to return the communications that we cannot insert. Articles and notes that convey useful information, or that are of general interest to our readers, are much valued by us, and we do not destroy any letters because they are not quite accurately written. No one knows better than ourselves that many sound practical gardeners and worthy men are not finished grammarians, but they can impart information of great value, and need not hesitate to do so, as we readily correct inaccuracies that the writers, from no fault of their own, are unable to correct. Educational facilities were not so great in England a quarter of a century ago as they are now, and it is much to the credit of many gardeners that they, through self-improvement almost solely, are able to write so well and interestingly. We do not remember having received an article from you, perhaps it did not reach us; what was the subject of it?

**Snow a Protector (B. D., York).**—It is a valuable protecting medium, as the condition of the young Wheats and Grass fields show after having been covered thickly during a term of severe weather. Your man has done quite right by "banking the snow high up round the dwarf Roses," and others will do well to follow the same practice if the frost and snow continue. The same practice may be advantageously applied to other plants and shrubs liable to injury, and also to such crops as young Cabbages, Lettuces, and Cauliflowers, autumn-sown annuals, &c. Snow may be also banked round the sides of frames, and placed on the covering on the glass of those wherein half hardy plants are being wintered. In covering young plants of any kind it must be placed on them very lightly, and in small quantities at a time, as the work if roughly done may cause injury. We have many times turned snow to valuable account in the manner indicated. It should also be placed thickly on the ground where water pipes are laid not far below the surface.

**Vines Dying (One in a Fir).**—It is so unusual for Vines to die that we should be glad to see roots of those that are yet alive, to see whether they are attacked by the phylloxera. A few fibrous roots packed in soil from the border and sent in a small box will be sufficient. The wet to which you allude would be to some extent injurious, but would not kill the Vines. Clean healthy Vines planted inside and the roots kept moist by copious waterings as needed, and mulching the narrow border with manure, would grow up the back wall, but would not bear well there after the roof becomes covered. Similar Vines ought also to grow in the outside border if the soil is of a fertile character.

**Box Edging and Snow (Puzzled).**—It will be a great mistake to incur the labour of removing the snow from the Box edgings, as if you do this and the frost continues intense much injury will almost inevitably follow. The "piles of snow," consequent on the sweeping of walks, will do no harm to the Box if it is dwarf and close, not more than 2 or 3 inches high; but if it is tall and loose it might be bent and broken with the weight, and against this contingency you might remove a portion of the snow, but not all. We once saw men employed for many days removing the snow from the Box edgings in a large kitchen garden, and all the Box so exposed was killed, and weeks of labour and much cost were involved in planting fresh Box in the spring. We have known Box edgings covered 2 or 3 feet thick with snow for many weeks, and after the thaw the Box

was as green as ever; the snow had protected it just as it protects the grass of the lawn during severe weather.

**Sulphurous Vapours (H. Godwin).**—You are quite right, these vapours are most injurious to vegetation. We know of several instances similar to the one you mention where nurserymen have suffered serious losses by the pernicious vapours from chemical works and brick-kilns. If our correspondent, Mr. Bardney, opens the ventilators of the vineries at Norris Green when the wind blows from a certain quarter where some vitriol works are established, the foliage of the Vines is destroyed in a few hours. The forest trees are also seriously injured on the side where the vapours strike them, while Conifers and evergreens are dead or dying. The shrub that appears likely to live the longest in the garden referred to is Ilex Hodginsii, and the circumstance may well be remembered by those who are planting shrubs in insalubrious localities.

**Gas Lime for Gardens (Miss A.).**—For the destruction of wireworms gas lime ought to be dug into the ground in the autumn, as sufficient to kill the grubs cannot be applied at the time of sowing or planting the crops without great risk of injuring them. A small handful, or about 2 ozs., sprinkled on each square yard of surface and well mixed with the soil to fully a foot in depth, is quite as much as is safe to apply at this season of the year; but in the autumn, as soon as the crops are cleared, nearly twice that quantity may be dug in the ground. If the lime is fresh and strong 1 oz. per square yard should not be exceeded if seeds have to be sown almost immediately afterwards; this will probably check the wireworms to some extent, but will not extirpate them.

**Aloe Unhealthy (A. A.).**—We presume the portion of leaf you have sent to us has been cut from the base of the plant, and that the leaves above are much larger and more healthy. The plant ought not to grow at this season of the year on the staircase, as growth produced in the absence of light is necessarily imperfect and unsatisfactory. The plant should be watered occasionally to keep the leaves fresh—not merely sprinkling the surface of the soil, but giving sufficient to penetrate the entire mass. Surface dribbles that so many amateurs indulge in are highly pernicious, and a fertile source of plants "damping off." The leaf you have sent is decayed at the base, which indicates that the soil at some time has been moist on the surface and dry below. The reverse of this ought to be aimed at in the wintering of plants, and especially those of a succulent nature. Remove the decayed leaves now, and apply water carefully as we have directed; in the spring turn the plant out of the pot, and if it is matted with roots apparently healthy place it in a pot a size larger, employing turfy loam and a sprinkling of broken charcoal, potting very firmly; if the roots are few and unhealthy, which we suspect is the case, cut off any decayed portions after removing most of the old soil, and place the plant in a much smaller pot, employing a free admixture of crushed charcoal with the loam. Place the plant in a greenhouse or light warm window, and keep the soil moist but not wet, and as new roots are formed healthy leaves will be produced. April will be a good time for repotting, and in July the plant may be stood in a warm position outdoors, placing its pot in one still larger to prevent the sun burning the roots.

**"Hardy Cactus" (L. R., Clapham).**—There is such a plant as you require—namely, *Opuntia Rafinesquiana*, represented in fig. 13, which, though not a member of the genus *Cactus*, is included in the same natural order, and is well adapted for outdoor culture, as it is hardy in the southern counties of England. The following particulars concerning it, by a gardener who grows it well, may interest you:—"This is one of the few Cacti which are perfectly hardy in this country, or at any rate in the south of England. It is a singular-looking and distinct plant; the branches are large and flattened, smooth, of a dark green colour, from the edges of which the numerous bright yellow flowers are produced. It will flourish in a well-drained position in the border or on the rockery where it will receive good drainage, and it will stand exposure. I have found it grow well in loam, sand, and broken bricks. It may be increased by removing the joints and placing them in pots of sand in a frame."

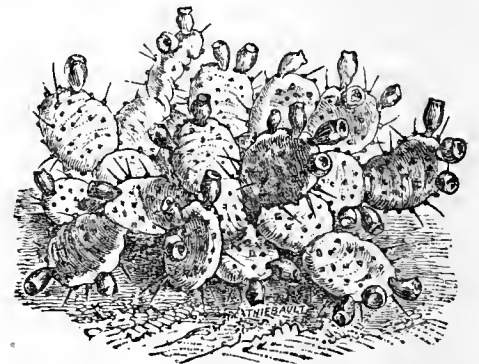


Fig. 13.—*Opuntia Rafinesquiana*.

**Names of Fruits (W. H. Ashwin).**—Kentish Fillbasket. (A. M.).—The Pear is Spanish Bon Chrétien, a stewing Pear. The small Russet Apple is Pit-maston Pine Apple, the large one Tower of Glamis.

**Names of Plants (F. H. H.).**—As we have many times stated, we do not undertake to name varieties of florists' flowers, still, when good examples reach us, and we can identify them, we readily publish their names. The flowers you have sent are very small and imperfect; 1 is probably *Jardin des Plantes*, and 2, *Julie Lagravère*; it is impossible for anyone to name the others. The leaf sent appears to be of *Richardia athiopica*. The *Heliotrope* is not sufficient for identification, being too small and much withered.

**Bees Buzzing in Intense Cold (Rowton).**—You inquire the reason of your bees "buzzing away as though it were a summer's night" when the thermometer stood 21° below freezing point, and ask whether something was not wrong. We reply the buzzing was the simple result of the intense cold, and if your bees were carefully protected in good hives it was in itself an evidence that all was right. Our article of last week entitled "Should Bees be Brandy-Bibbers" should be studied with this reply, in order that the whole matter may be well comprehended. When the outside temperature in the winter falls to about 40° Fahr. bees are in quiescence almost amounting to dormancy, but as the thermometer drops it becomes necessary for the insects to put forth some effort to keep their temperature sufficiently high. This they effect by agitating the abdomen, and so drawing in and driving out air with greater quickness, and increasing the oxidation (combustion) of honey or saccharine matter within them, and thus augmenting the amount of heat they are each individually capable of producing. When, however, the temperature becomes intense in its severity this expedient is not sufficient, and the wings have to be brought into play for precisely the reason that a cold-struck coachman endeavours to get warmth into his body by descending from his box and flapping his arms, by which movement he expands and contracts his chest quickly and drives along his blood, and so at length becomes warmed. The buzzing or wing-flapping raises the intake of air (oxygen) to the greatest extent, and blows, as it were, the internal fire to its greatest fervour, and so keeps out the cold. It is a



struggle for the bees, but if they be only strong and have ample supplies Jack Frost will have to do much more yet before he conquers them. The non-conductivity of hive sides is now of the very highest moment, and in relation to this matter some experiments are in hand, which have yielded curious results, which before long will be described in our columns.—F. C.

#### COVENT GARDEN MARKET.—JANUARY 19.

LITTLE or no business doing, our market being completely frozen out.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines..	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges .....	½ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	2 0 4 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples ....	½ lb.	1 0 2 6
Gooseberries ..	½ sieve	0 0 0 0	Plums .....	½ sieve	0 0 0 0
Grapes .....	½ lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ 100	12 0 18 0	ditto .....	½ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ...	½ 100	1 0 1 6	Onions .....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli .....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage .....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney .....	bushel	4 0 4 6
Cauliflowers .....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Celery .....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 6	Scorzonera .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 0
Fennel.....	bunch	0 3 0 0	Shallots .....	½ lb.	0 3 0 8
Garlic .....	½ lb.	0 6 0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 36.)

RELATIVE to the various machines made and supplied by Mr. Gibbs, a writer in the *Agricultural Gazette* of October 4th, 1880, observes:—"We will not stop to estimate the loss that has been sustained during the hay and corn harvests of 1878-79-80, or what the use of Gibbs' drying machines have saved the farmers, for it is now generally admitted that it has been very great, and had the use been anything like general throughout the kingdom the saving would have been enormous. Considerable improvements have lately been made in the details of construction, so that machines are now made in various ways to suit the requirements of farmers, and of different sizes. Any kind of steam engine which the farmer may possess can be used for driving the machines; they are now also made for being driven by horse and bullock gears. Water-wheels may be employed in hilly districts where water-falls are plentiful. Heated air from a coke furnace is used for drying hay, corn in the sheaf, Hops, malt, wet grain, &c., but wood or peat charcoal will answer equally well, if not better. The heated products of combustion are drawn from the coke furnace by a suction and blast fan, and driven through air-ducts into the hay in a direction the same as that in which the grass moves from the feed end to the discharge end. The temperature of the hot blast may be about 320° Fahr., and this high temperature from the way it is applied does not scorch the hay so much as a burning sun. The tedding of the hay is effected by a twofold operation thus: It is supplied at one end of the machine in forkfuls from the cart that brings it from the field. The floor has a to-and-fro motion, like the shakers of a threshing machine, which draws in the wet hay and throws it forward; but at every inch of its progress to the delivery end sets of forks on crank axles give the hay a gentle toss as it passes, shaking it up loosely to

the action of the heated air, so that wet hay from the mowing machine passes through the drier ready for the stack, cleaner and less damaged than when made by tedding machines and horse rakes in bright sunshine. The appearance of the hay in stack, the avidity with which live stock of every kind relish and thrive upon it, and the chemical analysis by Dr. Voelcker and other chemists, all prove this."

Some of the trials of Gibbs' drying machine were hardly fair for to obtain the full advantage in any wet season. The newly cut grass from the mowing machine ought to be carted directly to the drier, and stacked as fast as dried; in this way it is stated that 10 acres can be secured daily. No doubt this will to a great extent be the practice in future, and farmers who cut their grass in adverse seasons and allow it to lie about until spoiled will have only themselves to blame. It is a question of employing a sufficiency of capital only in farming to become independent of the seasons both at hay time and harvest. There are now not only the hay and loose corn-driers, but also the sheaf-drying machine. It is recorded that Mr. Ashcombe of Sewardstone cleared an acre per hour from the swathe, and dried it in fine condition at the cost of 11s. per acre, the hay realising £4 5s. per load (crop of 1879) when sent to market. It is calculated that the machine-dried hay made a profit beyond the ordinary process and cost of the rent and rates, &c., charged upon the land.

In the sheaf-drier the heated air from the coke furnace is forced into the hot-air chamber, placed immediately below the floor of the drying shed. A number of conical perforated tubes, open at the bottom, rise from the floor. The sheaves of corn are placed upon these, butt-end down, the ears being uppermost. The hot air in the chamber below is compressed upwards through the small perforations in the floor, and tubes all through the sheaf. Under these conditions it has a very drying effect, so that in the course of fifteen or twenty minutes the sheaves, however wet, are ready for stacking or threshing. The small shed exhibited by Mr. Gibbs at Manchester in 1869 only held thirty-two sheaves at a time; but sheds of any size may be made, say sufficient to hold a cartload at a time. With a shed of this size a farmer could carry, dry, and stack his Wheat, Barley, or Oats as fast as the sheaf-binder could cut and bind it, say 10 acres per day. By this plan the expense of stooking would be avoided, as also the labour of setting up stooks when blown down in stormy weather, and the loss from shaking, discolouring, and sprouting of the grain. Gibbs' drying cylinder is another machine worth attention, being adapted for drying damp grain—Hops, malt, and any kind of small seeds, often difficult to harvest in wet seasons. We commend the machines noticed to the home farmer, as they are somewhat costly, and in some instances may be out of the reach of many tenants of small farms. We have reason to believe, however, that, like most other valuable machinery, they may be let on hire in the future, as they are adapted for so many useful purposes that they would be in request at all seasons of the year.

#### WORK ON THE HOME FARM.

*Horse Labour.*—We now ask the home farmer to look forward and anticipate the work to be done in the spring as much as possible; amongst other matters, to consider and arrange what seeds of pulse or Lent corn will be required, so that the varieties may be fixed on and purchased the first favourable opportunity. A new variety of field Pea is now advertised, called Laxton's No. 1 Early Maple, said to be three weeks earlier than the old Maple, and was, it appears, raised by crossing the old Maple with the earliest white garden variety. If the seed is sown in February it is stated that the crop can be cleared off early in July, the haulm growing about 4 feet high. This variety may be worth a trial when the land is required for the growth of Turnips after the Peas are harvested. Again, we believe from our experience that on the mixed soils Barley is often sown after roots fed off when there is not the slightest probability of growing an even and plump malting sample, in consequence of the variations of soil and variations in certain parts of its condition owing to the difference in the weather during the time the sheep were feeding off the roots. In such cases we recommend sowing white Canadian Oats or black Tartarian Oats



mixed with Barley, as quantity then has the advantage. We speak from experience, for about the year 1855 we sowed half a field with white Canadian Oats and the other half with Barley, the result being that we grew eighteen sacks per acre of the white Oats and nine sacks per acre of grinding Barley. Both were sold in the same market on the same day at 28s. 6d. per quarter. This to our mind was conclusive, for we grew no more Barley afterwards upon the mixed soils after roots fed off with the land in high condition. The straw of the Oats was likewise, as regards quantity and quality for the feeding of cattle, worth as much again as the straw of the Barley; besides which the white Oats will always be earlier to harvest, and the Clover seeds take better in them than in the Barley. In all those cases where the fallow ploughing has not been completed the first opportunity must be taken to do so. Wheat-sowing may be continued upon friable loamy soils in good condition until the end of the present month, after which we prefer to put in white Canadian Oats or some other variety for which the soil and climate is known to be congenial. Besides the risk of failure of the late and spring-sown Wheat of a dry summer there is the fact, according to our own experience, that the Oats will produce as many quarters of grain as the Wheat crop will yield sacks in ordinary seasons. Whilst we are writing the weather is dry and frosty, and should this continue for a few days the home farmer will be enabled to lay out the farmyard and box dung upon the Clovers, or otherwise have it drawn to a heap in readiness to be laid out on the first favourable opportunity for the Potato or Mangold crops. When the dung is fresh and moist, in the act of making the heap by drawing the loaded carts thereon a great deal of liquid manure escapes into the soil beneath unless the precaution has been adopted of making a floor of earth upon which to build the heap. By this plan the underlying earth will be valuable, either to lay out together with the dung or otherwise to be used as a dressing for the pastures or parklands, for which it is admirably adapted.

*Hand Labour.*—The men will now be employed in the usual routine labour of the farm at this period, such as dung carting and spreading, water-furrowing, trenching in the pastures and parklands, and attending to the changing and flooding of the watercourses in the irrigated meadows, so that all parts may have an equal advantage from the deposits left by the flood water; cutting and making hedges, banking, also cutting and converting the underwood in the coppices and hedge-rows. The women should now be employed in preparing roots for the cutter and pulper, working in the fields, preparing food for the sheep. In snow or wet weather the preparation and cleaning of roots for the cattle in the boxes and feeding courts may be done. This is, in fact, women's work, for they will do as much and often more than men, they being frequently more active in such light work.

Shepherds now in different parts and districts of the kingdom will be employed in various ways in the south and south-west districts, as well as in some of the home counties where the horned Dorset and Somerset ewes are kept. These have now finished lambing, and both ewes and lambs are now being aided by generous feeding, the ewes being allowed half a pound of decorticated cotton cake each per day, with as much good hay in chaff as they can eat without waste, and cut roots either of Swedes or Mangold as much but no more than they will eat before leaving the troughs. This is the only sure method of preventing waste, and when the cake is given as meal and mixed with the cut roots it is of still more importance to avoid waste. The feeding of the lambs in advance of the ewes should be carried out in accordance with the mode of rearing the lambs, whether intended for store purposes and be sold as such at the stock fairs, or whether they are to be sold as fat lambs at the earliest period. In the former case they will do very well by receiving good sweet hay twice a day and run in advance of the ewes, eating off the greens of the Swedes or Turnips. This will do well for them up to the time of weaning, when the wether lambs will require better feeding, such as cake, &c. The ewe lambs, however, which will go with the stock ewes will require no better feeding than the rest of the flock. In the second case, when the lambs are intended for the butcher the highest and best-known system of feeding should be adopted both for ewes and lambs, for it is a fact that the higher the ewes are fed with artificial feeding stuffs the richer will be the milk available for the lambs. Again, the more liberal feeding the lambs obtain the less will be the call upon the ewes for milk, and the earlier will both ewes and lambs be fit for sale; in fact the best practice is to have the ewes and lambs both ready for sale simultaneously. In order, however, to carry out this system to the best advantage we give the ewes a full allowance of cut roots and cake with bean meal mixed with and strewn over the roots in the troughs. One pound of meal per ewe per day, composed of one-third bean meal and two-thirds cake meal, with the best Clover or Saintfoin hay *ad libitum* given as chaff, will bring out the ewes fat at the same time as the lambs are sold, or very soon afterwards.

The mode of feeding the lambs we recommend is in advance of the ewes, giving a full allowance of Carrots or Cabbage whilst young passed twice through the cutter and mixed with the best American cake meal and bean meal, or Swedish Turnips mixed and cut in the same way. At the same time they should have cracked beans and fine broken cake in covered troughs placed with back to the wind and under the hurdles. This shelter induces the young lambs to seek it, and then they find their food more readily. They should have the finest of hay given in chaff by itself twice a day, and any portion not

eaten to be removed to the ewes. To carry out this system, however, the lambs must not only be fed in advance of the ewes, but it must be in a fold cleared of the roots; for we never allow fattening lambs to run over and eat off the greens of roots, as many lambs will be injured or lost from diarrhoea by so doing. Besides this, the trough food as above stated will be found far more forcing and superior to root greens. Mangold is well adapted for ewes but not for lambs, and when the ewes are fed upon cut Mangolds mixed with meal, as before stated, it is our practice, both morning and afternoon, to feed the lambs before the ewes, so that the former may all pass through the lamb gate and be shut off whilst the ewes are being fed. Our reason for this is simply that many of the best wether lambs will often die from stoppage of urine if allowed to eat Mangold, hence the necessity of separate feeding. We give the home farmer this caution, having suffered considerable loss in our lambs before we adopted the mode of separate feeding.

#### THE MANGOLD WURTZEL FLY (ANTHOMYIA BETÆ).

THE current number of the "Entomologist" contains a carefully prepared report upon this pest from the pen of Mr. Fitch. We quote a few particulars in further elucidation of its history, supplementing what has been stated in a previous number of this Journal concerning the insect.

The observations of 1880 show that it has appeared in many places, principally in the north and the midlands. Its attacks are not confined to the Mangold Wurtzel, for the leaves of Parsley and Celery have also been mined by the maggot, and several large-leaved wild plants, such as the Burdock. Two depositions of eggs have been noticed, the first occurring in May or June, the second in July or August. These are very minute, snowy-white, and laid in batches of from four to a dozen. The full-fed larva is yellowish white, about a third of an inch in length; the head is furnished with two black hooks with which it scrapes the parenchyma of the leaf. Sometimes the larva remains in the leaf to become a pupa, but it more frequently descends to the ground. The second brood hibernates in the pupal state, the flies appearing on the wing during the spring months. Although only two broods were noticed in 1880, it is considered that under favourable circumstances there might be three or four in succession. The chief damage sustained last season was caused by larvæ that were hatched about the third week in July.

#### VARIETIES.

**RAID AGAINST WOOD PIGEONS AND ROOKS IN FIFESHIRE.**—The East of Fife Agricultural Society have commenced a raid against Wood Pigeons and rooks with the view of reducing their numbers, convinced that these birds do great harm to farm crops. Large numbers are being shot. On two days every week the slaughter goes on. Varied opinions, however, are entertained regarding the rook, which it is believed by many does much good in destroying insect pests.

— **THE BIRMINGHAM DAIRY SHOW.**—The vexed question of poultry or no poultry at the Dairy Show to be held in Bingley Hall in June next, has at length been settled in the affirmative. It was suggested some time ago that an exhibition of cross-bred poultry would form a useful adjunct to the Exhibition, and might do some good in showing the farmers what kinds were most profitable for them to keep. This idea, however, was very far from finding favour with a considerable number of the Cattle Show Council, some of whom were altogether against the exhibition of poultry at all, while others were equally convinced that a collection of what they termed "mongrels" would considerably damage the prospects of the annual Christmas Show. The real question, therefore, to be decided was, whether there should be a regular poultry show, including classes for "barn-door fowls," or whether the poultry should be dispensed with. At a recent meeting of the Cattle Show Council Mr. E. W. Badger (one of the Hon. Secretaries of the Dairy Show Committee) formally applied for permission to hold a Poultry Show in connection with the Dairy Show. A special meeting was called to consider the subject, and it was held on Thursday last, the Mayor (Alderman Chamberlain) presiding. After considerable discussion it was unanimously decided that the experiment should be tried for one year. We may add that the question has been warmly taken up by the Lord Lieutenant and Lady Leigh and other influential ladies and gentlemen, and that several prizes are already offered, for the sake of

encouraging farmers' wives and daughters to take a greater interest in the poultry yard.

— **SPRATT'S POULTRY FOOD.**—Mr. Merrick of Bristol, who is obliged to keep his fowls in close confinement, states that "by feeding them almost entirely on Spratt's patent meal they are kept in excellent health, and the food keeps in good condition for months in a closely fitting box." Another correspondent who rears several hundreds of chickens and pheasants annually, also speaks in approving terms of the value of the meal in question.

— **HOW SELLING MILK IMPOVERISHES THE SOIL.**—Where milk is sold all the mineral and nitrogenous constituents which it contains are lost to the soil. These elements have been estimated at fully two-thirds of all the cow consumes, and although this looks to be a large loss it is without doubt correct. Prof. J. F. W. Johnson says: "Every 40 gallons of milk contain 1 lb. of bone earth, besides other phosphates. Estimating a cow to yield 750 gallons of milk per year, it will require 19 lbs. of phosphate, equivalent to 30 lbs. of bone dust. If the calf is sold off, we may assume there is a loss of 20 lbs. of bone, and the waste of phosphates in the urine equals 4 lbs. And thus for every cow a dairy farm maintains, it will lose of earthy phosphates as much as is contained in 56 lbs. of bone dust." This shows what must be returned to the soil, where milk is sold, if complete impoverishment of the land would be guarded against. We are all well aware this presentation of the subject is not a new one; but we have deemed a recapitulation of these facts desirable on account of many recent statements to the effect that "the selling of milk is the most profitable branch of farming where cows are kept." It does call for a less outlay of care, work, and money without doubt, but unless purchased manures are largely made use of there will be a constant drain upon the reserved fertility of the farm. This provided for, and dairying is profitable in this order: First, butter-making; second, cheese manufacture; third, selling of milk.—(*New England Farmer.*)

— **A CURE FOR FOOT-AND-MOUTH DISEASE.**—The Duke of Brunswick has of late successfully combated the ravages of this much-dreaded enemy on his estate at Stampen, near Oels, in Prussian Silesia, by treatment with salicylic acid, the well-known antiseptic that we have previously referred to. Instead of several weeks being required to effect a cure, as with the remedies hitherto employed, truly surprising results have been brought about within a few days by this new treatment. A solution of the acid is prepared by pouring some hot water on about three tablespoonfuls of salicylic acid in an earthen vessel, and adding lukewarm water to make up a gallon. The mouth and feet of the diseased animal should be carefully washed three times a day with this liquid, and the tops of the hoofs well powdered with the dry acid after each ablution. The effect will, moreover, be greatly increased by salicylating the drinking water of the beasts by the addition of two tablespoonfuls of the acid dissolved in hot water. During the above treatment great attention must be paid to the perfect cleanliness of the stables or sheds.

— **THE BUTTER PRODUCT.**—In no single department of agriculture, says the "American Cultivator," have more experiments been made than in setting milk, resulting in great progress, not only in the extraction of butter of superior quality, but also in increased quantities. However, it is still an open question whether this notable progress in dairy husbandry is owing to superiority in the implements employed or to the superior skill of the operator. It seems to be a settled point that the butter produced at the creameries is superior in quality to the great mass of that made in private dairies, and in this case both improved implements and superior skill on the part of the operators combine to give the desired result. It needs no argument to convince intelligent persons that a dairyman in a well-appointed creamery, whose whole energies are devoted to one object, can excel in butter-making the individual who is employed in that occupation but a few hours in the week. Creameries get a product that is stamped with uniformity in quality and appearance, and that is the result of the highest skill in the art, aided by the latest improvements of scientist, inventor, and mechanic.

— **FLUKE IN CALVES.**—"A. B." writing to *Nature* says—"Can any of your readers account for the following facts?—An examination

of the liver of some six-weeks-old calves which had never touched any food but their mother's milk showed them to be infested with fully-developed fluke (*Distoma hepatica*). It is clear that the presence of these flukes does not admit of the usual explanation—viz., the ingestion with green food or water of mollusca bearing the larva in one of its earlier stages. I should be grateful if any of your readers could suggest an explanation of the mode in which the fluke entered the liver of the calf. Is it possible that the larva may have passed into the milk of the mother, and so have entered the stomach of the calf? It may interest some of your readers to know that traces of fluke were present in the livers of cattle lately killed when in high condition. The fluke had apparently been established in the liver some considerable time previous to the slaughter of the animals, and had perished on their attaining to a state of high health and vigour."

## POULTRY AND PIGEONS

### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 20.)

IN the cases of poultry and Pigeons pedigree breeding is much less usual than it is with horses, cattle, and dogs. It is more difficult to identify the progeny of each pair of birds, especially with poultry, than is the case in regard to other stock referred to. No pedigree is required, and the most successful breeders are reticent in disclosing the methods adopted by them. It is thus almost impossible to adduce instances of successful in-breeding of poultry or Pigeons. At the same time it is known to many fanciers that in most classes the winning birds are the results of judicious in-breeding. We can, however, argue with certainty from the analogy of cattle. In the herd books of the owners of the very best strains of Shorthorns will be found the record of how much in-breeding has done for this breed. It is by no means unusual to find that the name of the same sire appears five or six times in the pedigree of a celebrated Shorthorn, and in some cases in-breeding has been carried even further than this. It is true that in some instances these highly bred stock become barren, but this seems to us to be merely a development of a latent tendency in this direction which existed in the family. Be this as it may, the fact remains that the most successful breeders have resorted with no sparing hand to in-breeding. We think it necessary to say this much in support of the method of breeding which we are about to recommend, because popular ideas are so very much astray on the subject.

It is perfectly common for beginners in purchasing stock to make a proviso that the birds sent shall be in no way related to each other. Authors, even, in writing about poultry, discourse upon the necessity of avoiding in-breeding, and speak of it as if it were an unmixed evil. As an example of this we would refer our readers to the paragraph on this subject in the "A. B. C. Poultry Book," and other instances might easily be cited. This general craving for fresh blood is founded partly, no doubt, upon the commonly accepted theories as to in-breeding, and partly upon the indisputable fact that in-breeding sometimes produces evil results and may be carried too far. It is also founded upon ignorance of the actual state of facts as to fancy poultry and Pigeons. These are for the most part, as at present known, the results of artificial selection, and this artificial selection has been going on in the case of many breeds or varieties for a great number of years. The show bird of to-day in most breeds is of a very different type to its ancestors of some years back. The process of artificial selection has developed certain points which are known as the chief "points" of the breed. So long as the breeding stock is composed of birds of the same family—even though they be but distantly related to each other—these artificially created points continue to show themselves, and the more in-bred the family is from birds perfect, or approaching perfection in any particular point, the more fixed does that point become in the progeny. The moment, however, that entirely fresh or foreign blood is introduced the work of years is in all probability overthrown by the natural tendency, which we have already referred to, to throw back to the original type. It may be that in consequence of one or other of the parents being very highly bred, and thus prepotent as to certain points, the progeny, or a proportion of them, will be good in these points, and that the tendency to throw back may in this way be counteracted, but it will only be counteracted as regards the first generation; and the birds thus

good in points, but what is known as loosely bred, will be worthless for the purpose of stamping their likeness upon their offspring.

We may illustrate our meaning by a reference to the Brahma fowl. The original Brahmas were of a mixed grey colour, and the Lights and Darks of the present day are said to be descended from a common ancestry. The points in each variety have been developed by artificial selection. The exquisite pencilling of the hens is a salient feature of the Dark variety, which perhaps more than any other feature has been produced by artificial selection. If the best pencilled hen that can be procured be mated with a bird of the highest quality, but perfectly unrelated to herself, it will be found that the pencilling is at once lost, and that nearly if not all the pullets are of a mixed grey colour quite wanting in pencilling. It may be that a few of them, in consequence of the prepotency of the hen, show a certain amount of pencilling, but for practical purposes the pencilling as a family characteristic is lost. We may be met in reference to this statement by instances drawn from the experience of breeders in which apparently perfectly unrelated birds have produced well-pencilled progeny. As to this, we can only say that in these instances the parent birds were probably distantly related to each other. Most strains of Brahmas through the country are more or less descended from a common stock in the first instance, and have also at one time or another been crossed one with the other. In this way it is difficult to be certain that the parent birds are unrelated in reality to each other; and successful results attained with apparently unrelated birds are probably to be accounted for by the fact that a distant connection unknown to the breeder actually existed between the birds, or it may be that the good results are to be accounted for by the prepotency of one or both parents.

In many varieties of poultry and Pigeons certain points which are deemed fancy points have been in existence and perpetuated for many years, in some cases centuries, and these points are not so liable to be lost by the introduction of fresh blood; but as a general rule fancy points, which are the result of artificial selection during a comparatively recent period, are liable to be entirely lost in the way we have indicated.

(To be continued.)

#### MATING POULTRY FOR BREEDING.

THOSE who require very early chickens have long ere this mated-up their breeding pens. The majority of poultry fanciers are content with somewhat later broods, hatched when the days are less short, and when some spring sun may be expected, and which are consequently less difficult and troublesome to rear. Many such breeders are but now making up their yards. We have had great success at the autumn shows with April-hatched birds, and with even still later chickens, and can therefore assure our readers that it is by no means too late to think about mating up desirable breeding pens; a few general rules for the guidance of novices in the pursuit may therefore not now be out of place.

It is very commonly believed that if a first-prize cock and two or three prize hens are bought at a show and put together first-rate produce must necessarily follow. We should hardly think it necessary to warn our readers against this fallacy were it not that year after year we see cases of failure and disappointment resulting from these haphazard unions. To begin with, there are some varieties the cocks and hens of which, if the somewhat arbitrary standards of perfection are at all to be attained, must be bred from entirely separate pens; about these we have frequently written, and will not now again detain our readers on the point; but apart from these breeds a certain amount of science and judgment is necessary in the mating of all poultry to ensure success, though occasionally by a lucky chance some accidental alliance may produce a cup bird. Money will not always command a well-matched pen, and often a skilful breeder will at very small cost make up a yard from which he can very confidently anticipate superior chickens, while an expenditure of £50 in an ill-assorted collection of cup birds will result in failure.

The first point to be discovered is that the males and females are of a similar if not of the same strain; first crosses of two dissimilar strains of the same breed are wont to bring out the faults of both. All races bred up to great excellence in any one point have been much interbred; the uninitiated do not know this, and are led away by fear of degeneracy to make continual "crosses" as they call them. It is the commonest thing for a beginner to think he is adopting the most approved and scientific course, and taking the royal road to poultry fame, if he discovers the two most successful exhibitors of his favourite breed and buys a cock from one and two hens from another. The result may be good, but the chances are against it being so; for probably the two great breeders each have their own favourite type for which

they have long selected their stock, and these two special beauties are both spoilt by union.

This is the first point to be considered, but then follow others. We by no means lay claim to originality when we remind our readers of a long-established conclusion among breeders of various stock—viz., that for the most part the male parent chiefly influences the external appearance of the offspring, the female its internal qualities. We have observed this constantly in our own poultry yards. From generation to generation certain beauties or peculiarities of form have been handed down through cocks, while, on the other hand, the daughters of well-known early layers have proved themselves early layers; and likewise as to the size and number of eggs laid, like has produced like. This is a point of great interest to those who aim at producing peculiarly useful as apart from peculiarly beautiful races, and one which we have before now commended to the would-be poultry farmer. To this rule as to the cock's influence on the external points of the chickens there is one partial exception—we have found the hen to have the greatest power in transmitting size to the chickens. Thus, while from small but perfect cocks we have often bred magnificent fowls, we never remember having strikingly large birds from small hens.

The age of the parent birds is not so material as their health, but as a rule the strongest and finest chickens come from hens in their second year mated with early cockerels of the previous season. In our opinion hens of twenty months old lay as well and as early in winter as pullets, and much finer eggs. Later in the season—viz., after the middle of March, pullets of a year old with strong two-year-old cocks produce large and excellent chickens; earlier than that, cocks of many breeds are not to be trusted unless the season and climate are exceptionally mild.

Another question is frequently put to us—viz., as to the respective influences of the cock and hen upon each sex of the produce. In this we have observed a difference between the case of the union of two birds of the same breed and that of the union of birds of two different breeds. In the former case as a rule each sex will in appearance generally follow the parent of its own sex. We say generally, for in some breeds there are exceptions which only great and careful observation discovers; indeed we have always considered it to be the height of poultry lore to know the particular points in the one sex which correspond with and produce particular points in the other, but, speaking generally, we believe the cockerels will follow their fathers and the pullets their mothers. For this reason we fancy that the many elaborate schemes for the breeding the sexes of certain varieties separately are as superfluous as they are troublesome, and that a little care and intelligence would produce both sexes in beauty from the same stock if only a compromise were made in one or two points difficult of attainment together. On the other hand, where crosses of two perfectly distinct breeds are tried, each sex for the most part takes after its parent of the opposite sex. We have specially been struck, too, with this fact in Pigeon-breeding, where it is common to mate two birds of different colours.

These are some general conclusions roughly drawn from our own experience; such may, perhaps, aid novices in avoiding the mistakes we have ourselves made. To recapitulate them they are briefly—

- 1, Breed from the same strain as far as possible, or at least from two strains which are known to go well together.
- 2, Look for perfection of points in the cock; for size and useful qualities in the hen.
- 3, For early chickens mate up vigorous early cockerels of last year with hens in their second year.
- 4, If cocks and hens are both of the same breed and the same strain, the colours and markings of each parent will be reproduced in the offspring of the same sex; but in crosses of absolutely different breeds the feather peculiarities of each parent will to a great extent re-appear in the chickens of the opposite sex.—C.

#### POULTRY NOTES.

THE POULTRY CLUB.—The election of officers and Committee of the Poultry Club is taking place this week. It has been delayed some days in consequence of nominations being sent in somewhat late. The members of the Committee who retire this time are the Hon. and Rev. F. G. Dutton, President; Mr. H. R. Dugmore, Treasurer; Mr. O. E. Cresswell, Hon. Sec.; Mr. R. E. Horsfall, Rev. J. D. Peake, Mr. E. Pritchard, and Rev. W. Serjeantson; all are eligible for re-election to their present or any other office on the Committee, but the Hon. Secretary begs not to be re-elected. The number of the Committee is to be increased from thirteen to twenty. The following are nominated to fill the vacant places:—For the Secretaryship, Mr. A. Comyns; and for the Committee without



special office, Rev. H. Cecil Fellowes, and Messrs. T. W. Anns, J. C. Fraser, T. P. Lyon, L. C. C. R. Norris, and Butler Smith.

**POULTRY AND THE FROST.**—The late terribly severe weather has proved most disastrous to poultry. In a famous yard of Dor-kings the combs or gills of almost every cock have been frost-bitten. The gills have generally been attacked first, and at once swell up to enormous size. We need hardly caution our readers against bringing birds in this state into a warm atmosphere or exposing them to sun. They should be put under cover—out of draughts, if possible, in the dark, and be well fed. We have found them relieved by laneing the bottom of the swollen gills, when congealed blood and matter flows out, and the inflammation seems allayed.

#### ONIONS AS FOOD FOR CHICKENS.

I FIND on reading over some American notes on Onions, that they are particularly beneficial to poultry. Fowls of all varieties are extremely fond of them, and derive great benefit from eating them. They not only serve all the purposes of food, but aid digestion and tend to ward off disease. They may be given raw or cooked. Chickens will eat not only the bulbs but the leaves when chopped up and mixed with soft food. Chickens that are allowed Onions prepared in this way rarely, if ever, have cholera, and are not likely to be infested with vermin. A very good food for laying hens during the winter months consists of cooked meat, Potatoes, and chopped Onions; the last ingredient answers the same purpose as pepper.—LA FLECHE.

#### THE BEST GRAIN FOR FOWLS.

THE question of "Which is the best grain for fowls?" is an important one for amateurs, more especially for beginners, who are always glad to know the best food to give to their fowls at different times. Grain forms a large part of fowl food at all seasons, and when good and of the proper kind nothing can be better. I prefer Wheat which weighs about 48 or 50 lbs. to the bushel. Small inferior samples are not profitable. Next to Wheat comes Barley, then Oats, and a mixture of all the three may be used with advantage. Buckwheat and Sunflower seed is not so easily obtained, but when it can be had at a reasonable price a little of both given occasionally is very acceptable. Hempseed is also a good change, but too much of it must not be given, as it is rather fattening for laying hens or stock birds. Rice may also be given at intervals; but Indian corn, which fattens them so quickly, is no favourite of mine. I have an impression if it is given in large quantities to white fowls when they are getting their new feathers, that it is the means of causing them to have a yellow hue, and if it is suddenly given in a large quantity it has a worse effect than this. The other day, happening to have no other grain, I was obliged to give fowls Indian corn the first thing in the morning, and in less than an hour we found one of the most healthy-looking pullets dead. As she was shut up in a small run with two or three others we could think of nothing that could cause her death but her sudden repletion of Indian corn. In my opinion it is highly indigestible. Ten days ago a neighbour lost a bird in the same way, and presumably from the same cause. Many Pheasants have recently died suddenly in the covers here. Some weeks ago they were supplied with no artificial food, and then Indian corn was spread about to draw them in before shooting, and I am quite of opinion that it was the Indian corn which caused their death in most instances. As a food for fowls we are thinking of giving it up altogether.—M.

#### KENDAL POULTRY SHOW.

THIS, one of the leading shows in the north of England, opened on Thursday, the 13th of January. The poultry numbered 562, the Pigeons 207. Messrs. Dixon and Charlton judged the poultry, and the last-named gentleman the Pigeons. The arrangements were upon the whole excellent, but we would suggest that another year the lower tier of pens be raised at least a foot higher; and as there is plenty of space in the passages, the fronts of these lower pens might project 6 inches further forward than the upper tier. This would do much to remedy the defective light in some of the lower pens.

**DORKINGS.**—*Coloured Cocks* (eleven) were of good average quality. First (J. White) very white on breast and tail, good profile but rather narrow, a fine red lobe, but an ugly comb. Second (B. Smith) a good bird of the Dark sort, white in lobe. Third (Carver) of medium colour, rather long in leg; v.h.c., King; h.c., Rutledge (2), King, B. Smith, Mrs. Hind. *Hens* (ten) were a very strong class. First, a well-known bird of Mr. Butler Smith's. Second (Cranston) squarely made and large, but dark in feet. Third (Smalley) too long in leg; v.h.c., (B. Smith) a grand hen, but out of sorts; h.c., Matthews. *Silver-Grey or Any Other Variety Cocks* (thirteen).—A good class, entirely made up

of Silvers. First (Cranston) good in all points and of beautiful colour. Second (Cranston) another good-coloured Silver, rather long in leg. Third (Roe) rather slight, and not so clear; v.h.c., Rutledge, Cowen; h.c., Cranston (3), Rutledge, Abbott. *Hens* (seven) were again all Silvers; a fair average class. First (Rutledge) short in leg and very silvery in plumage. Second (Cranston) of good colour, but with dark feet. Third (Cranston) a pullet sound in colour, but dark-footed again; h.c., Cranston, B. Smith.

**BRAHMAS.**—*Any Variety—Cocks* (fourteen).—Darks and Lights were shown together, which in these days is surely a mistake. First (Miss E. Cotes) a shapely Dark bird, good in foot feather, but hocked, with a little white in his tail, and a comb too high at the back. Second (Birch) the Belfast winning Light cock, now even worse in comb than before. Third (Wise) another Light, good in other points, but with a dreadful comb. Pen 86 (Brook), h.c., a very neat-headed heavily hocked Dark cockerel of good shape, though only moderate in colour; should in our view have stood second; v.h.c., Ansdell (2); h.c., J. Wood, Williams, Aspdon. *Hens* (eleven) contained some of the best hens of the season, but were not remarkable as a class. First-and-cup (Miss E. Cotes) the Palace cup Dark hen, looking grand in all other points, but too brown in ground colour. Second (Birch) a Light, good in size and shape, but with far too much of a buff shade through her plumage. Third (Aspdon) of medium size, and not very clear in marking—we preferred her neighbour v.h.c. (Percival) the Birmingham winner, and indeed should have placed this hen second; v.h.c. and h.c., Ansdell; h.c., Silvester.

**COCHINS.**—*Cinnamon or Buff.*—*Cocks* (seventeen) were a fine class, some of the commended and unnoticed birds having been leading winners elsewhere. First (Hine) a shapely very even-coloured Cinnamon of the dark-winged sort; sold at the auction for £14 10s. Second (Allen) a medium-coloured one of good size, but rather coarse in comb, and rather mealy on wings. Third (Rigg) short in leg and good in feather, but not large; v.h.c., Hind, Donkin, Brierley; h.c., Bragg (2), Brown (2), Hope, Jordan, Pickering. *Hens* (twelve) as a class were rather unsound in colour. First (Mrs. W. Steven) moderate in colour, of good size and shape, but wanting in foot feather. Second (Fleming) a Silver Lemon, good size, carrying rather too much tail. Third, Hope; h.c., C. Brown (3). We liked 128 (Clatworthy), a Cinnamon pullet, as well as anything in the class, but her tail was only half grown. *Partridge Cocks* (seventeen) were a very good class indeed. First (Sharpe) a shapely bird, rich in colour, though a little brown in fluff. Second (J. Wood) large and sound in colour, except for white in tail, but quite out of sorts. Third (R. J. Wood) good size and colour, but narrow in saddle and white tail; h.c., Southern, Wood, Mrs. F. Grant, Percival, Clatworthy, Sharpe (2), Robertson. *Hens* (eighteen) were one of the best classes we have seen this season. First (R. J. Wood) a fairly marked one of the old sort. Second (Percival) of the old sort again, but poor in marking. Third (T. Sharpe) a pullet better marked and larger than second; v.h.c., R. J. Wood, Sharpe; h.c., R. J. Wood, a beautifully marked bird; perhaps rather narrow; Sharpe (3), J. Wood, Southern (2), Mrs. F. Grant, Robertson. *Any Other Variety Cocks and Hens* had nine pens of Whites and three of Blacks; these latter, however, did not secure even a card. First (Darby) well-known winners, still wonderfully clear in colour. Second (J. Rawnsley) not quite so good in this point, although above the average. Third (Weeks) good size, but very dirty; v.h.c., Aspdon; h.c., Weeks, Mrs. W. Steven, Snell, Brierley.

**GAME.**—*Brown-breasted Reds.*—*Cocks* (seventeen) were a fairly good class. First (Braithwaite) a reachy bird, rather wanting in style. Second (Brierley) great reach again, but rather heavy in head, and not sound in tail. Third (Parker) of similar type to second, but better in tail; h.c., German, Nelson, Bothway. *Hens* (thirteen) were a moderate class. First (Martin) stylish and close in feather. Second (Braithwaite) a neat bird, in grand condition. Third (Mrs. J. Wilson) rather wanting in style; h.c., Warner, Rauthmell, Costelow, Ramson, Mrs. J. Wilson. *Black-breasted Reds.*—*Cocks* (sixteen) were again only a moderate class. First-and-cup (Brierley) a very stylish bird of good colour, but not hard enough in feather. Second (Matthews) very neat in head and long in reach, but slight and brown on thighs. Third (Brough) of good reach, but dull in colour; h.c., Fletcher, Martin, Lyon. *Hens* (thirteen) a good class. First-and-cup (Harley) a reachy bird, good in colour. Second (Brough) very smart and shapely, as also was third (Brierley); h.c., Fletcher, Matthews, Dawson, Lyon. *Any other Variety.*—*Cocks* (six) were so poor that first and second were withheld. Third (Harley) was a moderate Duckwing. *Hens* (seven) were but moderate. First (Harley) a good Duckwing. Second (Brierley) a willow-legged Pile. Third (Dickinson) a Duckwing again; h.c., Holden.

**BLACK SPANISH.**—*Cocks and Hens* (four).—First (J. Rawnsley) a good pair in all points. Second (Boulton), the cockerel rather rough in face; the pullet small, but even in lobe and broad over the eye. Third (Harrison) a fair pair.

**HAMBURGS.**—*Golden-spangled Cocks and Hens* (eight) showed a tendency to heaviness of comb. First-and-cup (Bracewell) a neat pair, good in colour but only moderate in marking and heavy in comb. Second (Bracewell) of similar type. Third (Duckworth) a moderate pair; v.h.c., Duckworth, Beldon; h.c., Rawnsley, Jackson. *Silver-spangled Cocks and Hens* (seven).—A moderate class. First (Rawnsley) a good pair in other points, but very bad in comb. Second (Beldon) much neater in head than the winners. We should have put this pen first. Third (Pickles) red lobes and heavy combs;

**h.c., Rawnsley, Patrick.** *Golden-pencilled Cocks and Hens* (nine) were a good class. First (Rawnsley) neat in head, clear in lobe, and good in colour and marking. Second (Beldon) another very good pair, pressing closely on the winners. Third (Pickles), the cock rather uneven in comb, but otherwise a fine pair; h.c., Driver, Winterburn, Duckworth, Carver. *Silver-pencilled Cocks and Hens* were five and all noticed. First (Beldon) very good in all points except that the cock had an uneven comb. Second (Pickles), the cock nicely marked, the hen failing on breast. Third (Rawnsley) a very good pair; h.c., Smith, Rawnsley. *Black Cocks and Hens* (eleven) were remarkable for their heavy combs. First (Beldon) a stylish pair in brilliant condition, but the cock's comb right over on one side. Second (Rawnsley) very good in lobe and in brilliant condition, but the cock heavy in comb. Third (Pemberton) moderate; v.h.c., Bracewell, Copeman; h.c., Rawnsley, Porter.

**LEGHORNS.**—*Cocks and Hens* (ten) contained three pens of Whites, and the rest Browns. First (Gibbs) Browns, good in shape and colour, but heavy in comb and stained in lobe. Second (Adams) Browns again, the hen a nice one, but the cock rough in comb, red in lobe, and squirrel-tailed. Third (Hurst) Browns, the cock with an enormous comb; h.c., Ardern, Bradbury.

**MALAYS.**—*Cocks* (thirteen) mustered strongly both in numbers and quality. First-and-cup (Arthur Woods) a powerful-looking dark bird of good carriage. Second (Bailey) very brilliant in condition but too soft in feather. Third (Bailey) a White, struck us as a cross-breed with a Game; v.h.c., Calvert; h.c., Yendall, Bailey, Strugnell, Lewis, Brooke. *Hens* (twelve) were not so good as a class. First (Eaves) a shapely hen of good carriage. Second (A. Wood) a smart pullet, carrying her wings too high. Third (Fisher) only moderate; h.c., Bailey, Abbott, Brooke.

**HOUDANS OR CREVES.**—*Cocks and Hens* were a very fine class, made up of ten Houdans and four Crèves. First (Mrs. Pattinson) Houdans, the hen very good in crest, muffling, size, and marking; the cock coarse in comb. Second (Jackson) a large pair of Crèves, the hen specially good in all points. Third (Mrs. P. Turner) good Houdans again; h.c., Palmer, Jackson (2, Crèves), Mrs. D. Lane, Mrs. P. Turner (2), and Mrs. Irving (all Houdans).

**ANY OTHER VARIETY.**—*Cocks and Hens* (ten).—First-and-cup (Rawnsley) a very fine pair of Golden Polands. Second (Beldon) good Silver Polands, but not equal in our view to third (Rawnsley) also Silver Polands; v.h.c., Partington (Golden Polands); h.c., Hands (Sultans), Calvert (La Flèche), Waller (Langshans).

**BANTAMS, GAME.**—*Black-breasted or other Reds.*—*Cocks* (twenty-five) were a very strong class, and all Black Reds. First-and-cup (Nelson) very neat indeed and good in colour, with hard close feathering. Second (Nelson) very smart and stylish, and in prime condition. Equal thirds (Anderton and Russell) both good birds; v.h.c., Cook, Stretch, Wardle; h.c., Fletcher, Wilson & Gowland, Roe, Buckley, Nicholson, Kennedy. *Hens* (twenty-one).—Here the Brown Reds had six representatives, the rest of the class being Black Reds. First-and-cup (Cook) a pretty little Brown Red, very sound in colour. Second (Fletcher) a stylish Brown Red, nicely laced on breast. Third (Cook) a very neat Black Red, good in colour and close in feather. Extra third, Eaton; v.h.c., Wright, Fletcher; h.c., Hore, Titterington, Nixon, Chorley. *Any other Variety.*—*Cocks* (eleven) were only a moderate class. First (J. Smith) a neat Duckwing, rather low in the carriage of his wings. Second (Davis) a Duckwing. Third (Lyon) a yellow-legged Pile, both rather large. v.h.c., Wright. h.c., J. Smith, Davis, Fletcher. *Hens* (seven).—A moderate class. First (Nelson) an evenly coloured Duckwing. Second (Eaton) another Duckwing. Third (Charnley) a willow-legged Pile. v.h.c., Cook (Duckwing), Charnley (Pile). h.c., J. Smith (Duckwing).

**BANTAMS OTHER THAN GAME.**—*Black.*—*Cocks and Hens* (eight) were all Rosecombs, and a good class. First (Harrison) neat in comb and lobe. Second (Rawnsley) good lobes, and in brilliant condition. Third (Clapham) a trifle large; v.h.c., Gunn, Anderton; h.c., J. Wood, Potter. *Any other Variety.*—*Cocks and Hens* (ten).—First-and-cup (Rawnsley) White Rosecombs, good in all points. Second (Bracewell) good Silver-laced. Third (H. B. Smith) Buff Cochins Bantams; h.c., Nixon (Silver-laced), Aspdon.

**DUCKS.**—*Rouen* (sixteen) were a wonderfully good class. First-and-cup, Messrs. Birch; second, Miss Newton; third, J. Newton; v.h.c., Rawson, Cranston (2), Bragg (2), Burn, Unsworth, Snell; h.c., Eaton, Fawcett. *Aylesbury* (five).—Not so large a class, but the winners very good in quality and size. First, J. Hodges; second, Snell; third, Mrs. Gunn; h.c., Mrs. Lane, Mrs. Turner. *Any Other Variety* (thirteen) were a good class largely made up of Pekins. First, Birch, (Pekin); second, H. B. Smith (Mandarins); third, H. B. Smith (Shell); v.h.c., Wade and Mrs. Gunn (Pekins); h.c., Earle (East Indian); Kendal, Collinson, and Snell (Pekins).

#### PIGEONS

Were in most cases good classes, and as the prizes as a rule went to well-known birds, call for no special comment.

**CARRIERS.**—*Cocks* (seven).—First, Baker, second, Stretch (Blacks). Third, R. Woods (a Dun); h.c., Yardley (Dun). *Hens* (four).—First, Baker (a Black); second, Stretch (a Dun); third, Yardley (a Black).

**POUTERS.**—*Cocks* (seven).—First (Rawnsley) a Blue Pied. Second (Baker) a Black Pied. Third (Gurthrie) a Blue Pied; h.c., Gurthrie and Woods (Blue Pies); Boulton (White). *Hens* (six).—First, Rawnsley; second, Gurthrie; and third, Baker (all Blue Pies); h.c., Boulton and Byford (Whites); Woods (Blue Pied).

**ANTWERPS.**—*Short-faced* (nine).—First, Bottomley; and second Woods (Silver Duns). Third, Hopwood (Red Chequer); h.c., Gorton and Hopwood (Silver Duns); Mays and Yardley (Red Chequers). *Any other Variety* (eight).—First and second, Rawnsley (Silver Duns). Third, Rawnsley (a Red Chequer); h.c., Mays and Preston (Silver Duns); Lister (Red Chequer). *Any Variety bred in 1880* (nine).—First, Moseley (a Silver Dun). Second, Rawnsley (a Red Chequer). Third, Bottomley (a Silver Dun); h.c., Moseley, Yardley, Rawnsley, and Bowker (Silver Duns); Rawnsley (Red Chequer).

**TUMBLERS.**—*Any colour Short-faced* (five).—First, Baker; second and third, Yardley, were all Almonds. *Long-faced* (twelve).—First, Rawnsley (a Black Agate). Second, Brunton (a Red Agate). Third, Bowler (a Black Beard); h.c., Bowler (Black Mottle); Bowler (Yellow Agate); Fowler and Woods (Red Agates); Woods (Black Bald).

**OWLS.**—*English* (nineteen).—First and second, Tresh; and third, Dale, were Blues; h.c., Lister, Woods, and Lee (Silvers); Rawnsley, Lister, and Preston (Blues). *Foreign* (five) were all White Africans. First, Woods; second, Baker; third, Leake.

**BARBS.**—*Cocks* (four).—First, Woods (a Red). Second, Baker; third, Woods; and h.c., Tresh, were all Blacks. *Hens* (four).—First, Woods (a Black). Second, Baker; and third, Woods (Reds); h.c., Tresh (Yellow).

**FANTAILS** (seven).—First and second, Loversidge (Whites). Third, Chorley (a Blue); h.c., Baker and Laidlaw (Whites).

**TURBITS** (twenty-one).—First, Woods, and second, Goldsbrough, were Blues. Third, Dale (a Red); h.c., Stretch, Brunton, Dale, and Coulthard (Blues); Baker (Red); Parkin and Holt (Yellows); Winterburn (Silver).

**JACOBINS.**—*Red or Yellow* (ten).—First, Weyman & Buchanan; and second, Holt (Reds). Third, Woods (a Yellow); h.c., Woods, Crossley, and Dale (2, Reds); Weyman & Buchanan (Yellow). *Any other Colour* (seven).—First, Weyman & Buchanan; second, Woods; and third, Dale, were all Blacks; h.c., Holt (Black); Dale (White).

**DRAGOONS.**—*Blue or Silver* (twelve).—First, Shewell (a Blue). Second, Wallace Smith (a Silver). Third, Shewell (a Blue); h.c., Guthrie and Close (Blues). *Any other Colour* (twelve).—First, Wallace Smith (a Grizzle). Second, McKenzie (a Dun). Third, Shewell (a Blue Chequer); h.c., Mays (White); McKenzie (Red); Shewell (Grizzle); Close (Blue Chequer); Byford (Dun). *Bred in 1880* (ten).—First, McKenzie; and second, Booth, were Blues. Third, McKenzie (a Dun); h.c., Wallace Smith, Grey, Pratt (Blues); Yardley (Blue Chequer).

**ANY OTHER DISTINCT VARIETY** (seventeen).—First, R. Woods (a Blondinette). Second, Joseph Wood (a Black Trumpeter). Third, Baker (a Fairy Spot); h.c., Gatty (Red Magpie); Gatty (Frillback); Yardley (Owl); Mays (Nun); Yardley (Blondinette); Dale (Nun).

#### OUR LETTER BOX.

**Incubators (Dalla).**—Most of the incubators now in the market have given more or less satisfactory results. We refer you to our columns of last week for accounts of successful hatching. It must be borne in mind that in this matter success depends quite as much upon the operator as upon the machine used. There is no great amount of intelligence required, but a close observance of the directions given as to management is indispensable. The artificial rearing of the chicks is practically rather more difficult than the hatching, as just at first the little ones require much judicious attention; many are killed by over-kindness, many by neglect. We intend shortly to commence a series of articles upon this subject, which we hope will be of use to our readers.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wct.			Max.	Min.	In sun.	On grass.	
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Jan.										
Sun. 9	30.356	34.0	33.5	N.E.	37.1	39.2	32.8	73.2	23.4	
Mon. 10	30.072	33.3	31.6	N.W.	37.2	35.6	32.8	55.3	30.1	
Tues. 11	29.822	31.8	31.0	N.W.	36.9	35.7	31.4	51.3	29.7	
Wed. 12	29.495	29.2	28.8	N.W.	36.6	33.0	28.4	65.9	27.6	
Thurs. 13	29.529	25.7	25.3	N.W.	36.3	33.6	19.3	42.7	13.7	
Friday 14	29.850	20.7	19.8	N.E.	35.7	26.9	19.4	33.4	16.3	
Satur. 15	29.802	14.0	13.8	N.W.	35.4	24.8	12.2	32.5	8.6	
Means.	29.847	27.0	26.3		36.5	32.7	25.2	50.3	22.1	

#### REMARKS.

9th.—Fine, with bright sunshine in morning; cloudy afternoon; moonlight evening.  
10th.—Cold and dull, little sunshine in forenoon.  
11th.—Fair, calm, and overcast; slight snow in evening.  
12th.—Snow in early morning, covering the ground about 1½ inch in depth; very cold but fine day with bright sunshine; moonlight night.  
13th.—Sharp frost; overcast morning; bright sunshine at 2 P.M.; fine afternoon; starlight evening.  
14th.—Fine, calm, bright, and very cold.  
15th.—Rather misty, and excessively cold; slight sunshine in forenoon; overcast in evening.

A very cold week, with intense frost towards the end.—G. J. SYMONS.



27th	TH	Royal Society at 4.30 P.M.
28th	F	Quekett Microscopical Club at 8 P.M.
29th	S	
30th	SUN	4TH SUNDAY AFTER EPIPHANY.
31st	M	
1st	TH	
2nd	W	Society of Arts at 8 P.M.

### THE FUTURE OF GARDENING.

**I**T is now many years since I occupied your pages with any of my remarks on horticulture, although the old love of holding communication with your readers has often been strong upon me.

My time, as many of your readers well know, has been so fully occupied during the past ten years, that it has left very few opportunities of indulging in what long ago was a constant source of pleasurable and recreative enjoyment to me. Although I have not been able to write in your pages for some years, I have derived a large amount of information from many of your correspondents who have so ably conveyed, through the medium of the *Journal of Horticulture*, their thoughts and practical experiences on the various topics connected with floriculture and horticulture generally.

I have always read with much interest the new year's addresses so ably written by your respected correspondent "WILTSHIRE RECTOR." The excellent article from his pen which appeared on the 6th inst. has naturally aroused my dormant scribbling propensities. The spirit of "WILTSHIRE RECTOR'S" theme is so much in unison with my own thoughts, and so congenial to my feelings, that I am impelled to fully indorse all he has said in respect to the future of gardening.

Like your correspondent, I am fully convinced there is a great and noble future in store for horticulture, and the greater the amount of energy thrown into it by horticulturists of the present day so much the greater will be the benefits conferred on this and future generations.

I hope and believe I shall live to see the day when a flower show will be held in every village in the United Kingdom; and "WILTSHIRE RECTOR" will pardon me for saying that I believe this would do as much good as all the sermons he could preach, even were he more eloquent in the preaching of the Gospel than he is in discoursing horticultural matters. We want to educate the taste of the people, and by that means reach their better nature, which would speedily become amenable to the influences which surround them. A well-cultivated cottage garden is a pleasant sight, and a sure sign that its inmates are happy and contented. The child born in many such an humble English cottage has become in after years a benefactor, not only to the generation in which he lived, but revered for ages after.

If the many acres of waste land we see in various parts of the country outside the cottage gardens could be added to these gardens, a vast amount of benefit would be conferred

on many thousands of honest cottage tenants; they would thus be enabled to cultivate large quantities of fruits and vegetables, which could be sent to the nearest markets and be the means of placing within their reach an additional means of happiness and contentment.

"WILTSHIRE RECTOR" has very ably dealt with the farmer's altered position. He is quite right in saying that other means should be tried when it is found that the old style of farming no longer pays, and when by reason of our uncertain climate the old stereotyped crops grown from generation to generation can no longer be depended on as a source of income. This being so, other things should be tried. I quite agree with "WILTSHIRE RECTOR" in thinking that fruit trees should be planted in considerable quantities in our fields, and also that vegetable culture should be more generally introduced by the agriculturists of England. There is, and ever will be, a widespread demand for all kinds of fruit and vegetable produce, and the facilities now offered by our railway system for conveying the products to the various centres where they are most in request lends additional security for the cultivation of fruits and vegetables.

Reverting again to the future of gardening, I think many will give me credit for the part I have taken in trying to help the advancement of an art which is part and parcel of my nature. My writings, I think, will also show that I have devoted a considerable amount of care and time to its advancement, and that I have tried to do so at no trifling cost; and I solemnly affirm that in the change recently made in the style of my undertaking I have been actuated solely by the wish to benefit my fellow men, and not in any way to injure others. The impression indissolubly impressed upon my mind is, that anyone who can benefit horticulture by increasing its sphere of influence and prosperity must be the means of increasing the trade and considerably enhancing the pecuniary position of those who are engaged in it.

The world is wide, and in this little England of ours there is plenty of room for many lovers of horticulture to succeed in making a name, and in advancing that highly humanising art, which will, I hope, clear away the cloud of prejudice, and cause the future workers in the wide field of horticulture to grasp the right hand of fellowship tightly, and to banish from their thoughts every invidious feeling.—JOHN WILLS.

### THE VEGETABLE SUPPLY.

IN reply to your correspondent, "W. P. B." (page 44) who impugnes the correctness of my article entitled "The Future of Gardening," not "Future Gardening," as he writes, I will first say that I never had London in my thoughts while writing, or referred to London in any way, as my critic will see if he reads it correctly, as I know well that London has an over-supply in many articles of diet; thus I have often watched the catching of fish close to a house I stayed in, which I could not buy, all being bought up for the London market. Further, if "W. P. B." takes pains to read my article correctly he will see I referred chiefly to poor tradesmen's families; for as yet the very poor—the labouring class in towns—are so ignorant of cooking that they cannot cook a tasty dish. My hope lies in the class above them. I aver that the supply of vegetables in country towns, or in towns in the provinces, some very large, is not adequate to their population, but I believe that a due



supply would cause and create a demand; also that the poor who go from villages straight to towns would gladly buy vegetables, from long use of them from their gardens in the country. London is an exception, and wholly out of court on the subject, so far as the lowest class is concerned. In another generation when board schools have done their work it may be different.

Progress is slow, improvement slower, so long as we have a thriftless ignorant residuum, usually too idle to attempt to cook food well. Vegetables will not be bought by this residuum; but there are classes above this, which even "W. P. B." allows, do buy such viands, and I aver that these in most towns have not a sufficient supply. The shops are few and poor. (Oh! contrast their fewness with the many public-houses!) Then, again, it is not by shops only, but by carts and barrows calling regularly in the smaller streets at fixed and suitable hours, that a demand will be created and supplied. Look at the faces of the poor, and especially of their children; do not these crave, aye, plead mutely by their pallor and pinched look, for a more wholesome diet? Surely they do, but it is gradually that we can reach and do such good: now a few just above them, then a few of them, and then more. A hundred years ago, and even less, there were no baths in even upper-class houses except foot baths, now every educated Englishman takes his tub of a morning. Improvement, I have said, is slow; as someone wittily wrote, "It is the largest room in the world," but still it does go on and will. Health and comfort, physical power and mental energy, and even morality, depend a great deal upon good nutritious diet, a diet in which vegetables ought to have a larger proportion.—WILTSHIRE RECTOR.

I HAVE long been an admirer of "WILTSHIRE RECTOR," as he generally contrives to make his communications both readable and instructive. I read and re-read his "seventeenth annual address" (page 1) with the intention sooner or later of making an amendment to that part of the address relating more particularly to the vegetable supply of the future. I have the less hesitation in doing this, since I am of opinion if gardeners can make any admissible suggestions to benefit the farmers they should do so, simply because the prosperity of the country is at stake, and no class more than gardeners more keenly feel the effects of short rents. The latter motive may appear selfish, which word must not by any means be applied to the "WILTSHIRE RECTOR'S" remarks on the vegetable supply, unsound as they appear to me to be.

The unfortunately too true facts briefly adduced by "W. P. B." (page 44) no doubt surprised many readers, and I trust our reverend friend will submit those notes to the perusal of Sir Gabriel Goldney, as there is not the slightest doubt that many well-meaning M.P.'s and others are offering advice upon a subject they know but little of. Market gardening at one time was most profitable; now, in the vicinity of London at all events, it is generally understood to be "all a lottery," with more blanks than prizes. There are too many engaged in it, and the foreign competitors with their superior advantages have finished the work. Nor does it appear that the consumers are much benefited by the over-abundance of garden produce.

The culture of vegetables to be profitable is very different and much more expensive than the ordinary farm crops, and many farmers who have turned their attention to them have regretted having done so. They commenced under the impression that they had found a "new and probably prosperous path," concentrated much of their capital (probably already too little for the extent of their farms) on a few fields, the remainder of the land being only half cultivated, and as a matter of course yielded poor crops. The success attending the vegetable culture may have equalled their expectations, and still more vegetables are then grown another year. Then comes a bad season; "no returns" from the salesmen, and our friend with all his eggs in one basket may be missing at the next rent audit.

Sir G. Goldney's friend doubtless will double his acreage of Onions this season, and others hearing of his success will imitate him. The original two acres probably about met the local demand, and every additional acre grown will most certainly injuriously affect the sale. The cost per acre (£20) is fairly computed. What if this expensively grown crop decay in clamps by hundreds of bushels? There is no certainty of a good sale for Onions, or more would be grown. If there is a demand for them in the provinces they would certainly be sent from the metropolis. The Pea trade only really pays when large quantities are bought up in London for the manufacturing districts. The same with Runner Beans, as there are by far too many grown to meet the metropolitan demand. To grow, pick, and send these by rail or otherwise at the rate of 6d. per bushel is simply ruinous, yet there were times last season when less had to be taken, and tons were never sold.

The extraordinary high prices realised last winter for greens of the commonest description has been the cause of greatly increased quantities of Savoys, Purple Sprouting Broccoli, and Brussels Sprouts being grown, with the result already given by "W. P. B." Sprouts, unless of the very best description, picked on January 14th (a bitter cold foggy day) the next day only fetched 6d. per bushel, and many were unsold. All the senders evidently anticipated a short supply, and pressed the poor women to pick them. I know of no colder work, but market growers, as times are, cannot afford to be sentimental; all the gin given by way of furthering the work was a dead loss, and much more besides on the date mentioned.

One of the favourite crops with farmers are Potatoes, and of these again there appear to be too many this season. They cost much to grow them well, and £4 10s. per ton is not generally a very profitable price for the best samples. Some of the salesmen have great quantities accumulated in their warehouses, as a difficulty is experienced in getting rid of inferior samples.

It may be urged that I take a pessimist's view of the case, and that the trade generally may yet regain its old elasticity. I trust it will, but it will not result from an addition of growers—quite the reverse. An improvement may eventually be effected in the tastes of the poorer classes, but the revolution promises to be ruinously slow. Let farmers be content with smaller farms and till these more, as their forefathers did. Cattle, pigs, and poultry are conspicuous by their absence on many farms, and even in this purely agricultural district milk and butter are bought with difficulty. Market vegetable farms to be profitable should in extent be in accordance to the capital and ability of the holder; they should be near to large towns to admit of the cartage in of the produce and the loading out with cheaply bought manure, which must be freely used. To sum up, instead of a large farm concentrate capital and faculties upon a few acres, cropping these heavily, and thereby save a considerable sum otherwise to be paid in the shape of rent, tithes, and taxes.—W. IGGULDEN, Orsett, Essex.

#### NOTEWORTHY PLANTS.

AMONG the numerous readers of this Journal there are many who possess or have charge of large collections of plants, and who are not merely interested in the preservation of those they already have, but wish to add to their numbers such novelties as are most deserving of cultivation, to obtain some of the old neglected favourites which are now rarely seen, or to gain particulars concerning the relative merits of the best and most distinct decorative plants. To afford a little assistance to such plant-lovers, and as I am favoured with opportunities of seeing a very large number of plants (including the latest introductions) under a great variety of conditions, I will occasionally give a few descriptive notes upon the most remarkable that come under my observation.

**SPATHIPHYLLUM PATINI.**—A beautiful Aroid of comparatively recent introduction, but which deserves to be widely known, as in some respects it is unsurpassed in its family. An admirable coloured figure of it was published a short time since in "L'Illustration Horticole," which represents a specimen in M. Linden's collection, and very fairly indicates the general character of the plant. It is of elegant habit, moderately dwarf, with stalked narrow lance-shaped deep green leaves, and scapes about twice the height of the leaves, bearing a cylindrical green spadix about 2 inches long, and a pure white tapering spathe of similar length, and an inch in width at the base. A specimen of moderate size may have from four to nine scapes, and as the spathes remain in good condition for a long period the plant is of no mean decorative value for the stove. It is found in some English collections under the name of Anthurium candidum, and was described in the "Gardener's Year Book" for 1875 as A. Patini, but it has been now definitely referred to the genus Spathiphyllum. It is a native of New Granada, and was sent to Europe by M. Patin about the year 1874.

**PRIMULA SINENSIS DELICATA.**—One of Mr. H. Cannell's varieties of the Chinese Primrose, for which a first-class certificate was awarded at the last meeting of the Royal Horticultural Society. It is of good habit, with the long elegantly-cut leaves which characterise the "Fern-leaved" forms. The flowers are 1½ inch in diameter, neatly fringed, of a soft pink hue, and with a yellow eye, and are borne in compact trusses well above the foliage. The tint of the flowers is very distinct and pleasing, the term "delicata" being an appropriate designation.

**CARNATION ANDALUSIA.**—Another of the plants recently certificated at Kensington, which deserves a few additional remarks. It was exhibited by Mr. Hill, gardener at Tving Park, Herts, who informs me that his employer, Sir N. De Rothschild, obtained it last year from a friend in Barcelona, where it is frequently seen in

the flower markets. Although the flowers are almost devoid of fragrance, their clear pale yellow colour, fulness of form, and prettily-fringed petals are decidedly attractive, especially as the free-flowering habit renders the plant of considerable decorative value, and from this quality being well marked the certificate was awarded it as a "decorative variety."

**CYPRIPEDIUM PURPURATUM.**—This species has no pretensions to be considered a novelty, but it is not very frequently seen, though several of the metropolitan nurserymen include it in their collections, and it is now flowering. A few particulars concerning it may not be devoid of interest. It was figured in the "Botanical Register" in 1837, where it is stated that Mr. Knight of the King's Road, Chelsea, introduced it a year or two previously from the Malay Archipelago, though the drawing was prepared from a plant in Messrs. Loddiges' collection. It is of neat habit, the leaves pretty, bright green, with spots of a darker shade. The reddish scapes are 6 to 8 inches high, each bearing a flower about 3 inches in diameter from tip to tip of the petals; the latter are half an inch in diameter, margined with hairs of a purple tint, green at the base, with dark spots; the upper sepal is of medium size, white streaked with purple; the lip is rather small, and similar in colour to the petals. Though not one of the most handsome of the genus it is neat and worth growing.

**CYDONIA (PYRUS) JAPONICA ALBA.**—It is not so generally known as might be expected that this plant is admirably adapted for forcing, though some gardeners value it very highly for that purpose. I recently saw plants of the variety at Messrs. Cutbush and Son's Nursery, Highgate, where they are grown in pots and placed in an ordinary forcing house a few weeks before they are required in bloom. The flowers are now expanding freely, large, of good form, and pure white; the streaks of pink which are seen in the flowers of plants grown out of doors are absent, though the exterior of the unexpanded buds have a tinge of colour. For yielding a supply of flowers at the present season when the demand is so great the plant is of considerable utility, and it only requires similar treatment to that afforded the majority of such when forced—namely, a soil of rich turfy loam and occasional supplies of liquid manure.

**RUBUS AUSTRALIS.**—An elegant New Zealand plant rarely seen in cultivation except in botanic gardens and a few large collections. It is usually regarded more as a curiosity than as a decorative plant; but small specimens in pots are very graceful when well grown, and are decidedly attractive in a greenhouse or conservatory. Some examples in Mr. Cutbush's nursery show its character admirably, and attract much attention from visitors. The peculiarity of the species consists in the long slender dark green stems and leafstalks and the trifoliate leaves, which are reduced to three linear midribs terminating in a small oval leafy expansion. The stems and petioles are thickly studded with small white spines, which contrast strangely with the prevailing dark green tint of the plant. It has been grown out of doors in various positions, but it is not quite hardy, at least in the north of Britain, as the late Mr. William Gorrie recorded in his pamphlet that both the species and the variety *cissoides* were killed in the winter of 1879 at Raitt Lodge, Edinburgh.

**ANSELLIA AFRICANA.**—One of the most distinct and attractive of winter-flowering Orchids, and which during the last few weeks has been in fine condition in several metropolitan gardens and nurseries and at Kew, where it is remarkably well grown. It produces a large branching panicle commonly bearing from two to three dozen flowers, but occasionally a considerably greater number, which are about 1½ inch in diameter; the petals and sepals being obtusely elliptical in form, of a pale yellowish green ground colour, thickly marked with large roundish or bar-like blotches of purplish maroon or chocolate. The greater portion of the lip is pale yellow, and the general appearance of the flower most striking and handsome when viewed in front, but they are so twisted or widely spreading on the panicle that comparatively few are seen at one time, a circumstance which slightly detracts from its beauty. It succeeds in the East Indian house in pots, and when flowering a cooler position may be assigned to it where the blooms will last for many weeks. It is a native of the island Fernando Po in the Gulf of Guinea; and one or two varieties are known, that named *gigantea* being the best. A faithful figure of the species appeared in the "Botanical Magazine" in 1857, about thirteen years after its introduction.—L. CASTLE.

**GISHURSTINE.**—Since you published your good opinion of Gishurstine (page 8) I have received other very good reports. These, with those of the leading gardening papers, will shortly be extensively circulated in the gardening world; but before the power of Gishurstine to keep boots dry can be made generally known the impending thaw may come, and an excellent opportunity for testing a waterproofing material thus be lost. I therefore beg the favour of your publishing the accompanying report just received.

The authority of the writer is so great and the opinion so decided that it ought to ensure Gishurstine being fairly tried. I may add, that though Gishurstine was originally devised for thick country boots it is now used also on ordinary walking boots over upper leathers and soles, and even on ladies' and children's boots, as it takes a good polish with blacking. It can be had from any nurseryman or seedsman.

Report from Mr. A. F. Barron, Royal Horticultural Society, Chiswick Garden, W., 22nd January, 1880.—"I write to thank you for bringing the Gishurstine under my notice. I have tried it myself, and my foremen in the garden have tried it, and found it excellent—far superior to anything we have ever used."—T. I. O. G. C.

## VEGETABLES TRIED AT THE EXPERIMENTAL GARDEN AT GIRTFORD.

(Continued from page 42.)

**Onions.**—Of the spring-sown the earliest to bulb and to come quickly off the land was the Cracker, an American sort from Mr. Jas. J. H. Gregory of Marblehead, U.S. It was a flat bulb with sulphur-coloured stem, but does not keep well. The best of all the keeping varieties appears to be New Zittau Round Yellow, a large handsome somewhat globose variety of the White Spanish type, the skin being of a rather redder tint; it will prove a solid and good weighing market Onion. Of autumn-sown sorts Trebons was the largest and best ripening, better in both the past seasons than Giant Rocca. The earliest was Early White Italian Marzajole.

**Peas.**—Upwards of one hundred established varieties were again tested, and of many of them numerous comparative sowings were made. The Earliest of All, a round blue variety, proved true to its name, the pods being fit to gather three days in advance of the best type of Harbinger and a week before Ring-leader; the height is 2 feet 6 inches, and in most other respects the Earliest of All was much of the character of Ring-leader. Of all the dwarf varieties Minimum, a very compact-growing early white wrinkled variety, is the dwarfiest, as it will bear favourable comparison with "Nain très hâtif à Chassis" of the French, which is a very dwarf selection of Tom Thumb. Minimum is also extremely productive, and this combined with its dwarf habit and excellent flavour render it also well adapted for forcing. Messrs. Bliss's American Wonder, which has been tried two seasons, is an excellent dwarf variety, having a good deal of the character of Little Gem as originally sent out by Mr. Turner. In early market varieties Messrs. J. Carter & Co.'s selection from William I. proved one of the best, the pods being of a deep green colour and coming very true in character, showing the careful attention this firm give to such matters. Amongst main crop 3 feet Peas John Bull, a very large-podded blue wrinkled variety, was very conspicuous in many comparative sowings, being unapproached in size and beauty of pod, fertility, luxuriance, and regularity of growth by any other Pea of its class. In tall varieties Telephone, which appears to be a well-filled blue-wrinkled Superlative, is the finest and best, and if I desired to grow only one tall Pea it would be Telephone.

**Potatoes.**—The best of all the American, if not the best of all recent introductions, is in my opinion Beauty of Hebron. It is one of the earliest of the transatlantic sorts, preceding Early Rose and producing very large and handsome tubers of superior quality, the skin of a paler tint than "the Rose." It has a moderate top only, and if it were not for the slight tint of skin it would command a high price in the market. It was grown at the Garden on a considerable scale under parallel circumstances with Myatt's Prolific; and although the market price of Beauty of Hebron was considerably less than Myatt's, the former, from its wonderful productiveness, proved the most remunerative. Scotch Champion was unsurpassed both in quality and quantity of produce as a round late variety, and was but slightly diseased. Magnum Bonum proved very productive, but in quality it is not equal to Champion, and, as previously alluded to, it showed disease materially. It is nevertheless a valuable acquisition.

**Rhubarb.**—Through the kindness of Mr. Veitch I was enabled to try many of the early varieties of Rhubarb, and of these Johnstone's St. Martin's was earliest and best in quality, although it has the disadvantage of not being so good colour as some of the succeeding sorts. Crosses of these, however, raised in the Garden inherit the good qualities of St. Martin's combined with a better colour.

**Squashes and Marrows.**—The best Squash was a green-skinned American variety received from the United States, the flesh, however, being deep yellow, and even in the young state firm and rich in flavour, and much superior to the yellow varieties. The



flavour of all the Squashes is quite distinct from and richer than most of the Vegetable Marrow type. Of the latter class Early Cocoa-nut is a handsome oval variety of medium size and good quality, producing a great quantity of marketable fruit.

*Tomatoes*.—Of these the earliest and best for open-air planting was Messrs. Vilmorin's Pomme rouge améliorée. Tried against Conqueror, Paragon, and other early sorts it is unsurpassed, as it is not only quite as early but of large size and handsome shape, and of a deep waxy scarlet colour; flesh firm, and quality very good. In ordinary or cool seasons I think this will be the best market variety for open-air growth.

*Turnip*.—The only Turnip grown at the Girtford Garden during the past season and worth eating was a round flat yellow Russian variety named Petrowskische, nearly all the white varieties being stringy and unsatisfactory in 1880.—T. LAXTON, *Bedford*.

#### IMANTOPHYLLUM MINIATUM.

THIS superb-flowering Amaryllidaceous plant was introduced from Natal by Messrs. Backhouse, in whose nurseries it first bloomed in 1852 or 1853. It is nearly allied to the Clivias. It is an evergreen, having green lance-shaped leaves. The flower stem rises a foot high, surmounted by an umbel of flowers varying in numbers to fifteen or more, according to the age and vigour of the plants. The blossoms when fully expanded are about 4 inches across, the flowers being red or salmon in colour, and yellow at the base of the petals. The flowers are produced successively from the same head, and form a fine head for some time. The plant flowers at various times, continuing to make fresh growth in an intermediate temperature, but seldom flowering more than once a year in a greenhouse.

I have now several in flower in a temperature of 55° to 65°, in which it generally commences blooming about the new year, and continues to throw up flower stems from the stools or several divisions of the plants over many weeks, and the plants being of considerable size from retaining the offsets when potting they have a fine effect. Grown singly in 6 or 7-inch pots they are useful for decoration. Potting is best done in spring after flowering, removing the old effete soil, draining efficiently, employing a compost of turfy loam. Supply water freely when growing, affording weak liquid manure occasionally, and never allow the soil to become quite dry. A light airy position is essential.—G. ABBEY.

#### THE SEED ORDER.

IN continuing my remarks on this subject from page 23, as some correspondents have asked for quantities I will name the quantities actually ordered of Peas and some of the more important vegetables, although I hardly think they will be of much service to other people. The establishment I have to supply is one of the largest, and I aim to have Peas from the end of May to the beginning of November. It is better to have too many at one time or at all times than to have a breakdown in the supply, and if varieties of the best quality only are grown there is little trouble in having the produce consumed. Of William I. Pea 4 quarts are needed, and these will be sown in two batches. Of Essex Rival 8 quarts, to be sown in three or four batches; the first sowing to take place simultaneously with the second sowing of William I., and the last sowing ten days or a fortnight after the first sowing of G. F. Wilson and Veitch's Perfection. Of G. F. Wilson and Veitch's Perfection 6 quarts of each are required when no other main crop Pea is used, and for the latest supply 4 quarts of Omega, or, if that cannot be obtained, then say 3 quarts of Ne Plus Ultra.

Beans come next in the catalogue I have before me, and of these I order 4 quarts of Seville Longpod and 8 quarts of Broad Windsor.

Of French or Dwarf Kidney Beans, as the main object is to have them for forcing, and to save some new seed for that purpose earlier than I could buy it, I order 6 quarts of Osborn's Forcing, which is an excellent Bean for all purposes. Where French Beans are only required for outdoor work the old Negro Longpod is not easily surpassed.

Of climbing varieties I am not yet tired of the flavour and peculiar roughness of the old Scarlet Runner; indeed I prefer it to any other Bean either dwarf or tall, but it does not look quite so well when cooked as the best of the dwarf varieties do. It is, however, a most productive vegetable, and one sowing keeps up a continuous supply for servants and those who prefer it all through the autumn from the beginning of July. When I do not save seed of Scarlet Runners, which is the safest plan now there are so many reputed improvements, I order 4 quarts.

Of Asparagus there is little choice but in names; anybody's

selection will do if it has been saved from healthy plants, and half a pound is sufficient.

The selection of Beet is much more difficult, for somehow a notion has become very popular that the darker-leaved varieties are the best to grow. This may be the case when they are grown for ornament, but we want flavour here as well as appearance, and my experience says there are none better than Pine Apple Short-top and Nutting's Selected for eating; of each of these I have 6 or 8 ozs. in a doubtful season. Dell's Crimson is grown largely for decorative purposes, but is made no future use of.

Borecole is a very important vegetable, of which I grow Dwarf Green Curled in large quantities. The tops of these succeed the Savoys for common use, and the side shoots keep up a good supply in early spring. I order 2 ozs. of this, 1 oz. of Cottager's Kale, and 1 oz. of Asparagus Kale. The last-named supplies greens of excellent quality long after spring Cabbages come in, and for my own taste I prefer them to Cabbages.

Of Broccoli the most important variety is Snow's Winter White, the hardiest of all Broccoli, and one which affords the longest supply—viz., from November to February. But you must have it true, as there are many spurious varieties sold for it. I have three packets of this, or half an ounce if I can get it by weight, and no other autumn or midwinter Broccoli is necessary. Veitch's Spring White makes a good succession to Snow's, coming in during February in a favourable season, while Model and Lauders' Goshen are splendid late varieties of hardy constitution and dwarf habit, one succeeding the other by about a week. A packet of each of these is sufficient for my purpose.

Of Brussels Sprouts I prefer a selection of the variety with incurved leaves, such as what is called the imported seed generally produces; but of course I know that any good selection made in this country is equally to be depended on, only unfortunately there are many bad stocks about. This is probably the most important of all green vegetables, and brings the greatest amount of produce, as we gather continually from August to February off the same sowing.

Of Cabbages I grow only our local variety known as Wheeler's Imperial, which has been in existence here over thirty years. It is a very different vegetable from that sold by the London seed firms under the same name, and is probably identical with what is now called Heartwell Early Marrow. Half a pound of this is sown about St. Swithin's day, and a pinch of it a fortnight earlier.

Cardoons are a very important crop where there is a French cook. Sometimes I succeed admirably, but this year all but half a dozen roots ran to seed, for which I blame the stock, as the cultivation was most carefully attended to.

Of Carrots, the French Forcing is used for a frame, and for one small sowing on a south border 4 ozs. suffices for this. Afterwards Early Nantes or a good selection of Early Short Horn only is used, and is sown in succession till the middle of July; this takes 2 lbs. of seed. The crop sown last July is still in the ground unprotected except by its own foliage, and is in beautiful condition.—WM. TAYLOR.

MR. WM. TAYLOR admits this annual duty is a difficult one. It is difficult for the practised gardener, as every such gardener knows and proves as he year by year wades through the almost interminable pages of present day seedsmen's catalogues to find out those seeds he always relies upon, and those which he made notes of through the past summer to try in the coming one. To find these is difficult enough, and then to select the novelties he intends to experiment upon more difficult still. Speaking of novelties, I may say that every good gardener grows a few novelties yearly—always a few, but only a few, and in addition to and supplementary of his usual crop. He never allows them to stand in the place of a crop, for he knows if he does he may have a bitter lesson taught him, as they may fail him utterly, and that in an important particular and at a most special time. So let me advise young gardeners to have a novelty or two by all means; so only will you keep yourself abreast of the times. But only have a few, and let them be exclusive of the demands of the house; then, if they succeed, you can always manage with an excess of production.

But seeing the generally admitted difficulty of making a good, useful, and economical selection of seeds, even by the professional gardener, why not do publicly as I often do privately? Advise small gardeners—gardeners who have more devotion to their garden even than many professional gardeners, but without much practical knowledge of seeds—to purchase one of the collections of seeds which most large seed establishments advertise to suit the wants of all sections of gardeners. These I can testify are all really useful, and generally adapted for the wants of any garden. We know that amongst gardeners there are many extraordinary



men, and these will want extraordinary seeds. I should never dream of advising these to buy a collection, but the average of gardeners would find the collections very accommodating. They save much time in selecting. They introduce to notice many varieties of which we were ignorant, varieties which on our soil and with our climate do better than some which we have chosen in years gone by. They also bring us a larger amount of seed for our money than we should have if we had chosen all the extraordinary seeds which we fancied, or which we had recommended to us.

One thing I may say therefore to those who decide to order a collection this year. Sum-up what it has cost you for seeds the last two or three years, then strike the mean, and in ordering a collection you may choose one somewhat cheaper, and then you will have more than you expected. It is quite true that these seed-growers do grow large stocks of the very best things which are profitable, and these are they which they make up into collections, so that the charge which people sometimes make against these seedsmen—that in collections they work off all their accumulated old stocks, whether good or not—is not true; and when we think of it, it would be strange if it were true, because to do so would be about the worst thing that they could do. I have never found it so, and I have had collections for many years for various sized gardens too, and I have always found them good, and many times excellent in the varieties sent, and much better than if I had gone to the trouble of selecting my own. Let me advise all those who do not like to trust to their own judgment, or who have not time to spare to hunt up special varieties, and who wish to be economical, to order a collection according to the size of their garden, and I venture to say that once having adopted that plan they will not return to the old way of making a selection of their own.—EXCELSIOR.

#### THE METEOROLOGICAL SOCIETY.

THE Annual General Meeting of this Society was held on the 19th inst. at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President, in the chair. The report of the Council for the year 1880, which was read by the Secretary, refers to subjects of considerable importance, and affords substantial evidence of the interest taken in meteorology by the scientific and general public. Amongst these may be mentioned the great success of the new climatological stations, as shown by their increased number, and by the regularity and care with which the observations have been made and recorded, and the returns forwarded to the Society. The Council also advert to the number of new and improved instruments exhibited at the meeting held in March last, to the increase in the number of Fellows, fifty-two having been elected during the year, and finally the numerous papers which have been sent to the Society from various parts of the world, embracing records of the climate of several important localities, respecting which but little has hitherto been known in this country.

After a vote of thanks had been passed to the Council for their services during the year and to the Institution of Civil Engineers for allowing free use of their rooms, the President delivered his address, in which he traced the history of English meteorological societies from 1823 to 1880. The earliest English effort at forming an English meteorological society, or at any rate at securing observations made with comparable instruments recorded upon a uniform system, was made in 1723 by Dr. James Juring, who was then Secretary to the Royal Society. In the "Philosophical Transactions" for that year will be found a Latin address by Dr. Juring, in which he anticipates nearly all the conditions which are now considered essential for comparable observations. This appeal did not lead to much being done, and in 1744 another attempt was made by Mr. Roger Pickering, F.R.S., who read before the Royal Society a paper entitled "Scheme of a Diary of the Weather, together with Drafts and Descriptions of Machines subservient thereunto." The Meteorological Society of the Palatinate was established in 1780 under the auspices of the Elector Charles Theodore, who not only gave it the support of his public patronage, but entered with spirit and ability into its pursuits, and furnished it with the means of defraying the expense of instruments of the best construction, which were gratuitously distributed to all parts of Europe, and even to America. One of the first acts of the Association was to write to all the principal universities, scientific academies, and colleges, soliciting their co-operation, and offering to present them with all the necessary instruments, properly verified by standards, and free of expense. The offer was accepted by thirty societies, and the list of distinguished men who undertook to make the observations shows the importance which was attached to the plan and the zeal with which it was promoted in every part of the Continent. In 1823 the first meeting of the Meteorological Society of London was held, and was attended by Luke Howard, Thomas Forster, Dr. Birkbeck, and others. After 1824 the Society languished, but it was never regularly dissolved. Owing to several letters and articles which appeared in Loudon's "Magazine of Natural History," a meeting was held on November 15th, 1836, at which the Society was revived, Mr. W. H. White appointed Secretary, and regular meetings resumed. Application was made to the Royal Society for permission to compare the instruments of the Society with the Royal

Society's standards, and leave was granted on March 13th, 1838. A volume of "Transactions" was published in 1839, and among other articles contains one entitled "Remarks on the Present State of Meteorological Science," by John Ruskin. The cost of the publication of this volume exhausted the funds of the Society, but in 1841 Mr. Gutch undertook personally the pecuniary risk of a new publication entitled the "Quarterly Journal of Meteorology," but this does not appear to have been very successful, owing to the high rates of postage. Shortly after this the Society practically came to an end. On April 3rd, 1850, a meeting of some friends of the science was convened by Dr. Lec at Hartwell, when the British Meteorological Society was established, and Mr. S. C. Whitbread elected President. The first general meeting of the members was not held till March 25th, 1851, but in the meanwhile several important steps had been taken by the Council. Annual reports were published from 1851 to 1861, and since then five volumes of the Proceedings and six volumes of the "Quarterly Journal" have been published. Up to 1858 absolutely nothing had been done towards forming a library, but in 1862 a catalogue was published containing about two hundred titles. In 1876 a new catalogue was issued, which extends to eighty pages, and contains over 1200 entries. On January 27th, 1866, the Society obtained a Royal Charter of Incorporation, and has since been known as "The Meteorological Society." On April 4th, 1872, the Council resolved upon taking a room for an office and for the protection of the library, and appointed Mr. W. Marriott as their Assistant Secretary. The work has now become so great that the Society has been obliged to take an additional room and to engage three computers. The subsequent eight years have been characterised by great progress. A series of second-order stations has been organised, which are systematically inspected, and at which strictly comparable observations are made. On January 1st, 1880, another and larger series of stations—called climatological—was started, at which the observations are less onerous than those at the second-order stations, but at which they are required to be equally accurate. Observations on natural periodical phenomena are also made at many places and discussed yearly by the Rev. T. A. Preston. At the request of the Society a conference has been appointed, consisting of delegates from several other Societies, to prepare accurate instructions respecting the erection of lightning conductors. At the conclusion of the President's address the following gentlemen were elected the Officers and Council for the ensuing year—viz., President, George James Symons, F.R.S. Vice-Presidents, Edward Ernest Dymond; William Ellis, F.R.A.S.; Joseph Henry Gilbert, Ph.D., F.R.S., F.C.S.; Charles Greaves, M.Inst.C.E., F.G.S. Treasurer, Henry Perigal, F.R.A.S. Trustees, Sir Antonio Brady, F.G.S.; Stephen William Silver, F.R.G.S. Secretaries, Robert Henry Scott, M.A., F.R.S., F.G.S.; John William Tripe, M.D., M.R.C.P.E., V.P. Soc. Analysts. Foreign Secretary, John Knox Laughton, M.A., F.R.A.S., F.R.G.S. Council, Edward Douglas Archibald, M.A.; Arthur Brewin, F.R.A.S.; Henry Storks Eaton, M.A.; Rogers Field, B.A., M.Inst.C.E.; Frederic Gaster; Baldwin Latham, M.Inst.C.E., F.G.S.; Robert John Lecky, F.R.A.S.; Edward Mawley; Hon. Francis Albert Rollo Russell, M.A.; Richard Strachan; George Mathews Whipple, B.Sc., F.R.A.S.; Charles Theodore Williams, M.A., M.D., F.R.C.P.

#### MR. HEWITT'S NURSERY, SOLIHULL.

THE railway traveller between Leamington and Birmingham on the Great Western line passes through some of the most interesting of the North Warwickshire scenery, and when he reaches Solihull station, seven miles from Birmingham, he can walk from the platform into "the prettiest little nursery in the provinces," as Mr. Hewitt's "horticultural snuggery" is described by one of the largest home-county nurserymen. It is a pretty nursery. It isn't large, when large is the epithet you would apply to the well-known establishments of the Pauls, Richard Smith & Co., Cranstons, &c., but it is good in every way. The genial and popular proprietor will have everything done well; he is too fond of his craft to allow trouble or expense to stand in the way of doing his best for his favourite plants and flowers.

On my last visit Mr. Hewitt kindly went round the nursery with me, and took me through his nineteen houses. The most showy of these was a new one 50 feet by 12 feet full of Zonal Pelargoniums. How bright it looked that dismal December afternoon! Why are not these Pelargoniums grown more largely by amateurs? The Camellia house next forced my attention, and I was fairly surprised to find such grand specimen plants, such perfectly clean bright foliage (and yet I have seen Mr. William Paul's Camellias at Waltham Cross!) Before the 12th of December upwards of three thousand blooms had been cut in this house. I saw large specimens of the well-known Donckelaari, Lady Hume's Blush, Fimbriata, and the Old White, one tree of this last variety having supplied Mr. Hewitt with upwards of one thousand blooms last season. In one of the three propagating houses Lilics of the Valley were being forced in succession, there being a very great demand for them both as cut flowers and in pots. Another large house is devoted to Primulas, and if you wish to see this flower in its perfection you must go into the neighbourhood of

Birmingham. The indoor fernery there is most lovely; I have never seen elsewhere anything of its kind to approach it in beautiful effect.

But I must now go out of doors and look at the Hollies, for which this nursery is so famous. Here may be seen perhaps one of the best and choicest collection in the provinces as pyramids, standards, and bushes. Of the hardy Conifers I noticed especially *Retinospora plumosa aurea* and *argentea*, *R. obtusa nana aurea*, and last but not least some very valuable specimens of the comparatively recently introduced *Thujopsis dolabrata*. Mr. Hewitt is a lover, and therefore an enthusiastic cultivator, of hardy herbaceous plants, large borders being devoted to *Tritomas*, *Potentillas*, *Phloxes*, *Pyrethrums*, *Delphiniums*, &c. Of *Delphiniums* he has a very large collection. Double Primroses are grown in great quantities for the trade. Roses, too, are largely grown, the flowers being cut in the bud state for button holes, all of which find a ready sale in the Birmingham market. From this little establishment upwards of three thousand bouquets and twenty-two thousand button holes are annually sent. I concluded my inspection by a visit to Mr. Hewitt's house, which is surrounded by noble specimen shrubs, &c. On each side of a straight walk was a ribbon border of evergreens in three rows—at the back *C. Lawsoniana erecta viridis*, centre *Retinospora plumosa*, and in the front *Retinospora plumosa aurea*—and very effective it was.—J. A. W.

#### PITHY CELERY.

I THINK we must look somewhere else for the cause of inferior Celery than in early sowing, but as alluded to by "PRACTITIONER" on page 48, there is a considerable difference in the quality of different varieties. I have grown several of them, but found none equal to what was sent out more than a quarter of a century ago under the name of Cole's Solid Red. I have grown no other for the last twenty years except for trial. It has never been inferior, except three years ago, when it was injured very much by the Celery fly. Out of nearly eight hundred sticks grown each year not one is pithy or runs to seed until late in the spring. The seed is sown in pans the second or third week in February. These are in the early vinery, and the young plants obtained are planted out in the open trench from the 20th to the end of May. They are not earthed-up in the least until the beginning of September, except those required for use at an earlier date. The whole is kept well watered through the summer if the weather is dry, when it is earthed-up. I frequently place some 2-inch drain pipes along the row 2 inches from the plants, leaving an inch open between the ends of each pipe. If the ground is level I place a pipe nearly upright at each end of the row; if on an incline one at the upper end will do. Down this pipe the water is poured, which will go through the openings and supply the whole length of the row. With the above-named variety and even ordinary cultivation, I feel assured that no one will have any pithy Celery.—D. WALKER, *Dunorlan*.

#### NOTES FROM MY GARDEN IN 1880.

##### ROSES.

As the notes which I have given in former years seem to have been acceptable to many of the readers of the Journal—simply, I suppose, as they are the record of one who has to fight against the difficulties consequent on not having a full purse, and who must superintend all the work and do a part of it himself, and not because there is anything extraordinary in his garden or his management—I shall again give my experience.

There is no doubt that in climate and situation we enjoy in this part of England advantages which are denied to many other counties; and although I once envied the greater mildness of Devon and Cornwall, I begin to think that, take it all round, gardening is more pleasant with us. There are things we cannot grow here which they grow in Cornwall; but then when a severe winter comes, as in 1879–80, the destruction which takes place is disheartening in the extreme; while if the more favoured districts of the south-west of Scotland enable gardeners to grow some plants to their great delight and the envy of their neighbours, we must bear in mind that their rainfall is nearly double ours; so that altogether I think we may not unreasonably claim to be the garden of England. Yet all that did not save us in the disastrous season of 1879, the effects of which I have to record in my notices of successes and failures in 1880.

I have already in the pages of the Journal given a general view of the season as it affected Roses and Rose shows throughout the kingdom, but perhaps after all there may be some little interest in the record of my own few hundreds: there is certainly to myself,

as I wish to ask the opinion and advice of my brother rosarians on one point.

In one respect the winter of 1879 was a very disastrous one to me. It played sad havoc with my grand plant of *Rêve d'Or*. All that part of it which faced the north was completely killed, and a large portion on the east wall was also killed. I was afraid that the whole tree would have succumbed to the severe and long-continued frost, but happily it is not so, and it has made a very determined attempt to recover itself; so that I hope before the end of the season it will have filled up a good deal of the vacant space. I have the satisfaction of feeling that it is not likely to be subject to such a severe ordeal again, for we are not likely soon to experience such a winter following such a season. In the same way my plant of *Cloth of Gold* suffered, and certainly more severely; for as the growth is so different the loss of wood is much more serious, in fact there was hardly anything left of it; but here again the tree is alive, and has made shoots 16 to 18 feet in length. I had carefully mulched the roots and stems of both plants, and if this winter had been severe should have matted up the shoots of *Cloth of Gold*, as it is evidently more easily affected by frost than *Rêve d'Or*.

I have been greatly discouraged with regard to my Roses generally. I committed the mistake, which I believe many did, of not pruning their Roses hard enough after so severe a winter, and, deceived by the manner in which they sent forth their shoots, believed that they would do well; but as the summer wore on I found out my mistake. Many died off; and many more, after giving a few good blooms, refused to grow any more. And here came a difficulty against which I have had to contend, and in some years more than in others—I mean orange fungus. It attacked my plants at the blooming season, and by the end of July nearly all the foliage had fallen. Can any of my brethren give me any consolation in this matter? Let me say that the situation of my rosery is quite open; I have no trees anywhere near me; it has all the benefit of light and air, and yet is not very exposed to violent winds; the soil is naturally a light friable loam, but during the past few years I have added a considerable quantity of good sound loam to it, so that it is in fairly good heart now for Roses; I have employed manure freely, but not to the extent that some growers do: and I see nothing in all these conditions that should subject the plants to this disease. If there are, I should like to be told which; and if I can get no information on this point perhaps some kind friend will tell me how to treat the plants when they are affected. The disease seems to come all at once: the under parts become quite orange, and then the whole of the leaf drops off, the slightest touch sending it down. I have seen somewhere a suggestion that the moment it appears the diseased leaves should be picked off, as it is believed to be infectious; but, with me at any rate, it would involve picking off the whole of the foliage. I cannot, therefore, think much of this suggestion. Then something has been said about syringing them with vitriol. I should like very much to know whether this has been known in any case to have stopped the disease. Unlike mildew, it does not seem to be dependant on atmospheric conditions, although it may be my ignorance to suppose that it is not. However, I have told my case, and can only ask for helpful advice.

By-the-by, I see in the "Year Book" that my brother Secretary mentions the fact that at Hereford he saw at the end of September at Messrs. Cranston & Co.'s nearly the whole of their large "stock of dwarfs on the Manetti had not only ceased flowering, but that much of the foliage had turned quite yellow, and in some instances many leaves had already fallen." This looked suspiciously like my enemy's work, only that he adds that it was not the case with those on the seedling Briar; but in my garden I have not traced that any difference existed, the stock seeming in no way to ward off or induce the attack.

I have already given my opinion on the new Roses as far as my experience went, and I shall but repeat what I have said in the "Year Book" concerning them. As far as English Roses are concerned I think the order of merit runs thus—Duke of Teck, Harrison Weir, Duchess of Bedford; while among the more recent French Roses Louis Doré, Charles Baltet, Gaston Levêque, Madame Eugène Verdier, Comtesse de Choiseuil, Léon Renault, Paul Jamin, Souvenir de Victor Verdier, William Koëlle, Préfet Lurberg, Jules Chrétien II., Jules Finger, Gloire de Bourg la Reine, Baron Taylor, Comtesse de Mormart, Catherine Soupert, Madame Oswald de Kerchove, Madame Lambard (Tea), and Innocente Pirola may be regarded as containing the most desirable. It may be that some of them may not retain their present position, and that some outsider may appear to oust some of them.

As so many of my Roses were crippled, and they were to be had at so reasonable a rate, I have discarded a large number of



wounded heroes and supplied their places with recruits. I have not, however, put them aside altogether, but have placed them in a sort of Chelsea Hospital, where, strange to say, although there is apparently no difference in the soil, they seem to recover themselves in a very wonderful way.—D., Deal.

### VARIATION IN TOMATO FRUITS.

HAVING noticed on page 25 that Mr. Iggulden has referred to the variation of Vick's Criterion as grown here, I consider the characteristic of the variety very marked in that respect; and in my experience of it, it is more subject to variation than any other variety I am acquainted with. The first season it was sent out I had an opportunity of seeing at Hawkstone many plants fruiting in 10-inch pots on the south side of a plant house outside. The stems were about 3 feet in height, very strong, and the crop a heavy one, with the fruit just ripening from the bottom half way up. I must confess I was somewhat surprised at seeing so many forms of fruits upon Vick's Criterion. Upon close examination no good judge could have passed the corrugated fruits for others than the variety mentioned. The colour, which is so distinct, was the same as in the smooth fruits. A number of cuttings of Vick's Criterion were rooted and planted in August last from which to obtain a crop of fruit during the winter here. The first bunches that set took their own course, but the fruits were all smooth. When the plants attained 3 or 4 feet in height they grew very strongly and produced enormous trusses of bloom, which as autumn approached were fertilised with pollen from the small flowers at the end of the truss, and nearly all the first fruits were corrugated, and several remain at the present time. Since the plants have become less vigorous the fruits towards the points are all smooth. Propagation by cuttings makes no difference after the plants attain strength, and the stronger they grow the more corrugated fruits they produce.

Two years ago I grew a number of the variety Green Gage, but only the strongest plants produced slightly corrugated fruits. Seed was saved from these fruits, but the plants raised from all produced smooth fruits. I think Mr. Iggulden right in stating that it would be unwise to attempt to show the two forms from the same plant or plants, and so run the risk of being disqualified.—WM. BARDNEY.

### MANETTIAS.

MANETTIA is not a large genus, nor are the few species included in it so beautiful as some of its allies in the great order Rubiaceæ, which yields us so many handsome plants; yet there are at least four species that would well repay for more extended cultivation—namely, those briefly described below. Except in the largest collections of plants, perhaps it would be scarcely possible to find them all grown in one garden, but in many one or possibly two are represented, and usually highly appreciated both by gardener and employer. They are of climbing habit, but differ considerably in the size they attain, some being well adapted for planting out in the stove and training up pillars and roofs; others are better suited for culture in pots either in the stove or greenhouse. With regard, however, to the temperature they need, I have found that they grow and flower more freely in what is ordinarily termed an intermediate house—that is, where the temperature is not so high as that of a stove nor so low as a greenhouse, but where there is more abundant atmospheric moisture than in the last-named structure. *M. bicolor* certainly thrives satisfactorily in a greenhouse when in flower, but it requires warmer quarters in which to complete its growth. As to soil, Manettias are not very fastidious. I have found them succeed in a compost of fibrous loam, leaf soil or peat, and sand, with a small amount of well-decayed manure when grown in pots, and under the same circumstances very weak liquid manure may be occasionally supplied advantageously. The usual care must be exercised in providing good drainage, for though not particularly liable to suffer from neglect in that respect, they, like all other plants, give greater satisfaction when superfluous moisture is not allowed to accumulate around the roots. The species of very strong growth need a little judicious pruning, but their requirements in that or any other point are not troublesome, and few in cultivating the plants will encounter difficulties of much importance, or such that a little skill will not overcome.

*Manettia bicolor*.—Though the flowers of this species are not individually so large or brilliant as those produced by the other forms, they amply compensate for their deficiency in size by the abundance in which they are borne and the distinctness of their colours; and further, the adaptability of the plant to culture in pots renders it of considerable value for decorative purposes at

the present season and during spring. It has slender graceful stems, and lanceolate, tapering, bright green, opposite leaves, from the axils of which the tubular flowers are produced. These characters are shown in fig. 14, except that, as it represents a

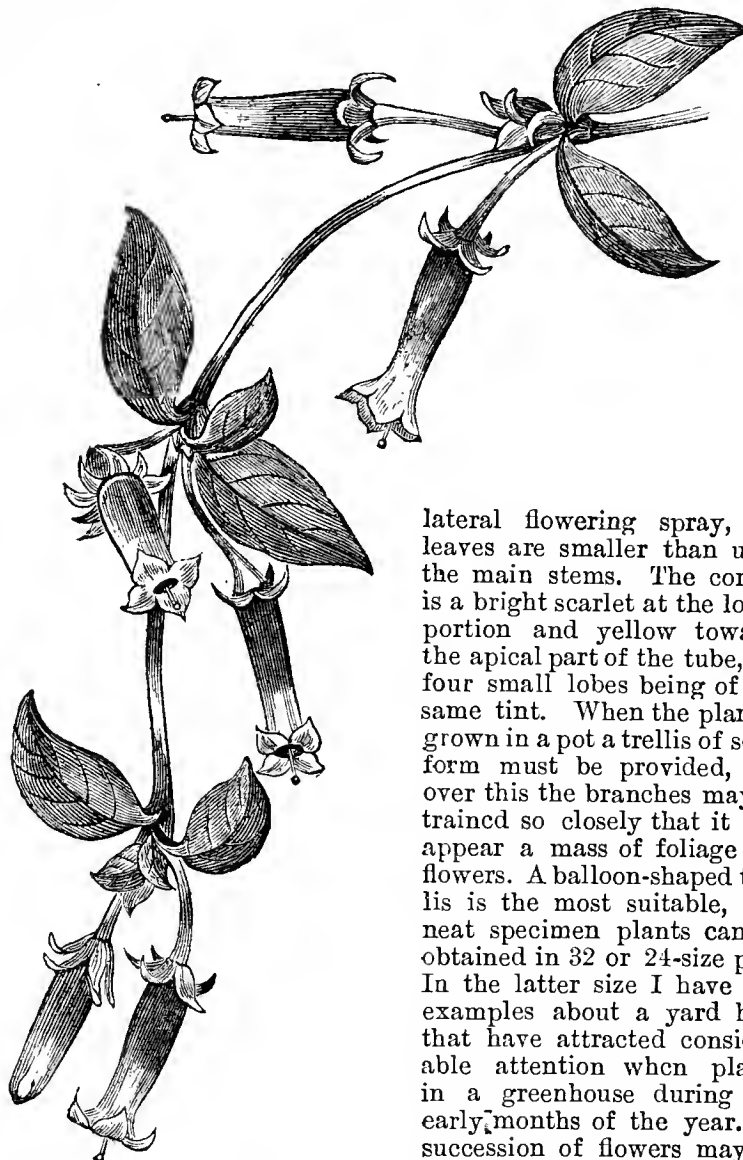


Fig. 14.—*Manettia bicolor*.

lateral flowering spray, the leaves are smaller than upon the main stems. The corolla is a bright scarlet at the lower portion and yellow towards the apical part of the tube, the four small lobes being of the same tint. When the plant is grown in a pot a trellis of some form must be provided, and over this the branches may be trained so closely that it will appear a mass of foliage and flowers. A balloon-shaped trellis is the most suitable, and neat specimen plants can be obtained in 32 or 24-size pots. In the latter size I have had examples about a yard high that have attracted considerable attention when placed in a greenhouse during the early months of the year. A succession of flowers may be easily obtained by forwarding some plants in additional heat

and retarding others. Cuttings of the young shoots strike readily in fine sandy soil, the pots being plunged in bottom heat.

The history of the species is brief. It is a native of the Organ Mountains, Rio Janeiro, where the noted botanical traveller Mr. William Lobb found it, and from him Messrs. Veitch of Exeter obtained their stock nearly forty years since.

*M. cordifolia*.—This is of slightly taller habit than *M. bicolor*, but may be also grown in pots, though it is more frequently employed as a climber in stoves or slightly cooler houses. It is very distinct from the one last described both in the form and colour of the flowers, which are also larger, but are produced in a similar way; the corolla bright orange-scarlet in colour, trumpet-shaped, with very small revolute teeth; and the leaves are cordate at the base, tapering, with very short footstalks. The plant blooms at different times from December to early summer months, and is useful for cutting, as the flowers are freely and successively produced. In its native home, Brazil, it is said to abound in the borders of forests, where it trails luxuriantly over small trees and shrubs, appearing very beautiful when in flower. It was there discovered by Mr. Tweedie, who forwarded seeds to a celebrated gentleman at Edinburgh, in whose collection flowers were first produced in the year 1832. The species is noteworthy as being the only one possessing any economic properties, for in Brazil the powdered bark of the root is considered as a highly beneficial medicine in dropsy and dysentery. It is also used as an emetic.

*M. micans*.—Unquestionably one of the most beautiful species when well grown, either in pots or planted out, in a stove or a moderately warm conservatory. In pots it may be trained according to the grower's taste, but, as mentioned under *M. bicolor*, a balloon trellis is the most generally approved form. It is very free in growth and flowering, bearing abundant panicles of rich orange-coloured flowers, similar in shape to *M. cordifolia*, but with comparatively broad lobes of a yellow tint. The leaves are heart-shaped at the base, with a bright shining green upper surface, and



have very short petioles, which are sometimes quite absent. In cultivation the flowers usually appear in the latter months of the year, a period when they are most acceptable; indeed, it cannot be too highly recommended both as a decorative plant and for affording supplies of useful flowers that can be employed to great advantage in all the numerous modes of floral decoration, as they combine most gracefully with other flowers and Ferns. The public are indebted to Messrs. Veitch of Chelsea for the introduction of this plant, as that firm obtained it from Peru about twenty years ago. It is found growing in woods at a considerable elevation above the sea level, and there attains the height of 20 feet or more.

*M. coccinea*.—This is not so well known in cultivation as those already described, though it was, I believe, the first introduced to this country. Possibly that is due to the lesser degree of brilliancy possessed by the flowers, though they are sufficiently attractive to render the plant worth growing. It thrives well in a stove, and trained up pillars its flowers appear to the best advantage, as the plant is of strong growth. It has flexible tough stems, elliptical leaves, and tubular corollas, which in the specimens that have come under my notice were of a rosy pink tint, deeper in the lobes. The calyx is peculiar, consisting of eight to ten linear recurved divisions, which impart a distinct appearance to the flowers. The latter are borne on small lateral branches, and are continuously produced during a period of two months or more in the summer or autumn. Seeds from Trinidad were first sent to the Chelsea Botanic Garden in 1823.—L. C.



AT the annual meeting of the Committee of the HORTICULTURAL CLUB, held at their Club House on the 18th inst., a satisfactory statement of the financial condition of the Club was presented, and a further sum was directed to be invested. Messrs. G. P. Hawtrey, Charles F. Hore, and G. Smith were elected members of the Committee in place of the three retiring members. The annual dinner took place afterwards, and was very fully attended, John Lee, Esq., in the chair. Amongst those present were General Puckle, Rev. G. Henslow, Rev. H. H. D'Ombrian, Dr. Hogg; Messrs. Bull, G. Deal, Hawtrey, Killiek, Laing, G. Smith, C. P. Wheatstone, Harry J. Veitch, J. B. Haywood, J. D. Pawle, H. Porteous Oakes, James Cutbush, Robert Osborn, W. Lee, H. Wood Ingram, and Wollaston. A pleasant evening was spent, and much satisfaction expressed with the arrangements of the Club.

— MR. W. SOWERBY informs us that the ROYAL BOTANIC SOCIETY will, as usual, hold four exhibitions during the present year. The Spring Shows will take place on March 30th and April the 27th, and the Summer Shows on May the 25th and June the 22nd. The Evening Fête will be held on June the 15th. Lectures will be delivered in the Garden on Fridays at 4 P.M., from May the 6th to June the 24th.

— AT the annual meeting of the WIMBLEDON HORTICULTURAL SOCIETY held last Friday, Mr. H. A. Rolt, of Maud Villa, Gladstone Road, Wimbledon, was appointed Secretary of the Society in place of Mr. P. Appleby, who resigned that office.

— WE understand, that in consequence of the increased DEMAND FOR FLOWERS AND PLANTS AT WELBECK ABBEY, the seat of the Duke of Portland, Mr. Carr, the gardener, has been obliged to convert several of the Peach houses and late vineries into plant stoves. Messrs. J. Weeks & Co. of Chelsea have received instructions to put down one of their largest duplex boilers, and to make the necessary additions to the piping in the houses.

— MESSRS. CARTER & Co. announce that they intend offering the following valuable cash prizes for their NEW PEAS AND OTHER VEGETABLES at the undermentioned meetings of the Royal Hor-

ticultural Society during 1881:—At the Great Summer Show, June 28th, 1881, one dish (fifty pods) Carter's Stratagem Pea, one dish (fifty pods) Carter's Telephone Pea, one dish (fifty pods) Carter's Pride of the Market Pea, one dish (fifty pods) Carter's Telegraph Pea; first prize, £5; second, £3; third, £2; fourth, £1; fifth, 10s. 6d. At the Society's meeting on December 13th, 1881, for the best collection of twelve dishes of vegetables (without restriction as to varieties), to include twelve Onions, twelve Turnips, three Cauliflowers, three Celery, fifty Brussels Sprouts, twelve kidney Potatoes, twelve Carrots, twelve Parsnips, six Leeks, three red Beet, twelve round Potatoes, one dish, open; first prize, £5; second, £3; third, £1 10s.; fourth, £1; fifth, 10s.; sixth, 7s. 6d.

— WE are informed that a meeting of the NORTHAMPTON CHRYSANTHEMUM SOCIETY was recently held to present to the Hon. Secretary, Mr. E. Draper, a testimonial in recognition of the valuable services he has rendered the Society during the many years he has held that office. The testimonial consisted of an elegant gold lever watch, chain, and seal, with an appropriate inscription. Mr. G. Gulliver presided, Mr. B. Johnson took the vice-chair, and a number of gentlemen were present, many of whom expressed their cordial gratification at the means adopted of intimating the general esteem for their persevering and indefatigable Secretary. Mr. Draper acknowledged the receipt of the testimonial in suitable terms.

— WE have received from Messrs. W. Stewart & Co., Holborn Viaduct, E.C., a copy of a small work by Mr. D. Houston, entitled "PRACTICAL BOTANY FOR ELEMENTARY STUDENTS," which appears to be accurately and lucidly written, and well suited for the young of both sexes who are commencing the study of botany with the aid of a teacher. Descriptions are given of some of the commonest wild plants as types of the larger natural orders, with general indications of their chief properties.

— A CORRESPONDENT sends the following letter—"In Messrs. Suttons' nursery I recently noticed a large house filled with CYCLAMEN READING GEM, for which a first-class certificate was awarded by the Royal Horticultural Society. It is a compact yet shrubby variety, with beautifully marbled foliage. The flowers are large, the petals remarkably broad and of great substance, colour white with a deep crimson base. It gives promise of being an easily grown and very serviceable variety. There are several other good varieties, some of the pure whites being particularly promising on account of their sturdiness and the size of their blooms. Much attention is paid to securing handsome foliage and sturdy flower stems, in addition to large sweetly-scented blooms."

— THE following are amongst some of the recent APPOINTMENTS OF GARDENERS:—Mr. J. Heath, Hiteham Grange, Maidenhead, has been appointed gardener to A. Longsdon, Esq., Fairfield, Upper Denmark Hill; Mr. G. Richards, late foreman at Gunnersbury Park, Acton, becomes gardener to A. Ussher, Esq., Villa Selvosa, Cannes; Mr. C. Gregory, Terlings Park, Harlow, takes charge of the gardens of G. B. Tipping, Esq., Coombe Lodge, Kingston Hill; Mr. J. Brightman, late foreman at Peterborough House, Fulham, has been appointed gardener to J. Carter Houghton, Esq., 20, Devonshire Place, London; Mr. J. Davis, Drayeot House, Fulham, succeeds Mr. Roe as gardener to J. S. Crawley, Esq., Stockwood Park, Luton; and Mr. J. Foster, Solna, Roehampton, becomes gardener to W. Kemp, Esq., Burnt House, Chigwell.

— WE learn that the magnificent FLORAL DECORATIONS at the marriage of Mr. Leopold De Rothschild and Mdle. Marie Perugia last week, which were so glowingly described in the daily papers, were supplied by Messrs. Veitch & Son of Chelsea, who executed all the arrangements with admirable taste.

— A CORRESPONDENT in Ipswich informs us that a number of gentlemen recently held a meeting in that town to consider the best mode of encouraging the culture of Roses in the district. After some discussion it was resolved that a Society should be formed to consist of amateur and professional Rose-growers, and to be named the EAST ANGLIAN ROSE SOCIETY, which will obtain its members from the counties Norfolk, Suffolk, and Essex. It is intended to hold an exhibition every year in one of these counties; the first to be held in connection with the summer Show of the Ipswich Horticultural Association. The following gentlemen were appointed to constitute the Committee.—The Rev. Foster Melliar, Tostock Rectory; Mr. W. Nicholl, Hengrave; and Mr. D. T. Fish, Hardwick House, Bury St. Edmunds; the Rev. H. Frere, Burston Rectory; and the Rev. Page Roberts, Scole Rectory, Diss; the Rev. Hugh A. Berners, Harkstead Rectory, Ipswich; and Mr. B. R. Cant, Colchester; the three last named being Hon. Secretaries *pro tem.*, to whom all inquiries or subscriptions should be addressed.

— AT the annual meeting of the SCOTTISH SEED AND NURSERY TRADE ASSOCIATION recently held in Edinburgh, Mr. Downie presiding, the report read by the Secretary, Mr. David Hunter, stated that the Society now includes forty-two members, there being the substantial balance of £57 19s. to the credit of the Association. It was also announced the prize of £5 offered for the best essay on the means of discovering adulteration in Clover seeds had not induced any competition. Mr. R. T. Macintosh was appointed President for the present year, Mr. James Hunter Vice-President, and Mr. David Hunter Secretary and Treasurer.

— A VETERAN gardener, WILLIAM SHAW of Tuebrook, near Liverpool, died on the 19th inst. at the age of eighty-six years. Long before his death Mr. Shaw became a wealthy man in consequence of having "taken care of the pence" in his youthful days, and investing his savings judiciously. Mr. Shaw was widely known and esteemed by the gardeners of the district in which he lived so long.

— WE learn that the DUNDEE HORTICULTURAL SOCIETY will hold a grand floral fête on the 1st, 2nd, and 3rd of September this year, when upwards of £300 will be offered in prize money. Competition open to the United Kingdom. Schedules may be had on application to Mr. D. P. Scott, Secretary, 9, Renny Place, Broughty Ferry, or Mr. John Miln, Treasurer, Euclid Crescent, Dundee.

— THE chief event in the horticultural exhibiting world in the present year will probably be the INTERNATIONAL EXHIBITION TO BE HELD AT MANCHESTER on the 24th to 27th of August; and the schedule, which is now issued, shows that from the number of liberal prizes offered no efforts have been spared to induce keen competition and an extensive display. Two hundred and thirty-seven classes are enumerated, of which those devoted to fruits—namely seventy-three, form a large comparative proportion, vegetables and plants being also well provided for; while cut flowers, bouquets, table decorations, implements, and cottagers' productions are all likely to be well represented judging from the prizes offered. Special prizes of considerable value are also offered for plants, vegetables, and fruits by the Veitch memorial trustees, the General Horticultural Company (John Wills) limited, and Messrs. Sutton & Sons; Dickson, Brown & Tait; Dickson & Robinson, and G. & W. Yates. Some of the chief classes in the several divisions are the following:—Fruits—for collections of fifteen and twelve kinds, £20, £15, and £10; £15, £10, and £5 as first, second, and third prizes respectively in the two classes; ten varieties of Grapes, one bunch each, £12, £8, and £5. Many other liberal prizes are also offered for Grapes, Peaches, Nectarines, Pine Apples, Pears, Apples, &c. One section of this class is confined to fruiterers, and another to fruits of foreign growth.

In the latter France, Italy, Germany, Holland, Belgium, America, Turkey, and Egypt being represented. The most important special prizes for fruits are those offered by the General Horticultural Company—namely, two of thirty guineas, and two of twenty guineas each. Among vegetables the highest prize is £10 for twenty varieties, while the principal amounts in the plant classes are £20, £15, and £10 for twenty miscellaneous plants. The entries close on August the 14th, and all communications should be addressed to Mr. Bruce Findlay, Royal Botanical Gardens, Manchester.

— THE SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY is the designation of a new organisation that has just been established by some of the leading gardeners of the district. The objects of the Society, which are in all respects commendable, cannot be better described than by quoting from the rules:—"1, The mutual improvement of its members, and advancement of floriculture and horticulture, by exhibitions of plants, flowers, fruits, and vegetables; 2, periodical meetings for the purpose of reading essays, and for discussions upon any subject that shall bear directly or indirectly upon the science of gardening, and that shall be considered to increase the skill and knowledge of either the professional or amateur gardener in horticultural pursuits; 3, also the delivery of scientific lectures on any subject that may be deemed essential in carrying out the above objects." Monthly exhibitions of plants, fruit, and vegetables will be held by the members, and larger shows as may be determined upon. A great amount of support has been accorded to the Society by the local gentry, and the number of members is increasing daily. Amongst the officers appointed are Mr. Haigh, Treasurer; Messrs. Udale and Eadon, Trustees; Mr. B. Simonite, Curator; and Messrs. W. K. Woodcock and J. F. Hanson, Hon. Secretaries. An excellent Committee has also been formed for conducting the affairs of the Society, which promises to become a prosperous one.

— It is announced that M. Ed. André has ceased to be the editor of "L'Illustration Horticole."

— FLORISTS' SOCIETIES.—The annual general meeting of the members of the National Auricula (Northern Section), Royal National Tulip, and National Carnation and Picotee (Northern Section) Societies will be held at the old "Bull's Head" (off the Market Place), Manchester, on Wednesday, February 2nd, 1881, at three o'clock, P.M. Business—To arrange date of this year's exhibitions, schedule of prizes, plan of judging, and any other matter and work connected with the management of the National Florists' Societies, Northern Section. The attendance of the members of the above Societies is earnestly requested.—S. BARLOW, *Hon. Sec. Royal Nat. Tulip Society, Stakehill House, Chadderton, Manchester*; F. D. HORNER, *Hon. Sec. National Auricula, and Carnation and Picotee Societies (Northern Sections), Kirkby Malzeard, Ripon.*

### THE FROST.

WHEN a sheep is roasted whole on the Thames, as was the case last Saturday near Twickenham, and when preparations have been made for roasting a bullock in a similar manner, sufficient proof is afforded of the exceptional severity of the weather. The temperature near London has not been so low during the past few days as previously, but there are very slight, if any, signs of a thaw. The snow lies in huge mounds and ridges, and some idea may be formed of its bulk from the statement of Sir J. McGarel Hogg in the House of Commons on Monday night, that a depth of 6 inches of snow over the metropolitan district of 117 square miles is computed to weigh eight millions and three-quarters of tons. We have received a great number of letters relative to the weather, and we can only make brief extracts from some of them to show its character in various districts. *Devonshire*.—Writing from Sidmouth, "E. D. B." observes that the snow is about a foot in depth, and the lowest temperature has been 17°. A week previous to the storm Rhododendrons, Snowdrops, and Primroses were flowering out of doors. *Sussex*.—Mr. W. Jordan writing from Silgate, Crawley, Sussex, observes, "The weather here still continues very severe. The lowest temperature experienced up to



the present time was on the 21st inst., when at 8.45 P.M. a thermometer 4 feet from the ground registered 4°. *Norfolk*.—Mr. J. Batters, The Gardens, Gillingham Hall, states that the recent storm was exceptionally severe in that locality; the lowest temperature was 3° Fahr. on the 25th inst. *Bedfordshire*.—Mr. Allis, Old Warden Gardens, states that the gale was very severe on the 18th inst., much damage having been done to the fine trees in the park, Scotch Firs 70 feet high having been completely uprooted. On the 21st inst. the minimum temperature registered was 4°. *Warwickshire*.—At Yardley Wood Vicarage near Birmingham temperatures of 5° and 2° have been registered, and our correspondent is anxious about its effects on his Tea Roses. *Northamptonshire*.—From Broughton House Gardens, Kettering, Mr. F. Jones writes, stating the lowest temperatures were observed on the 14th, 19th, and 21st insts. 3° registered on the first, and 2° on each of the other dates. *Herefordshire*.—A correspondent writes that the lowest temperature in the neighbourhood of Hereford was on the 22nd inst., when the minimum was 3°, but on the following day it rose to 29°, with the appearance of a thaw. *Lincolnshire*.—“A. M. B.” writes:—“The domestic inconvenience from the frost has been considerable everywhere; all provisions requiring to be kept as near the fire as possible. Eggs freezing and cracking in the nest, new milk is frozen in transit; and although the thermometer may not have registered so many degrees of frost as last winter, the cold would appear to have been more generally unbearable.” *Cheshire*.—Mr. C. J. Day of Rawton, Chester, informs us that on the 15th inst. the temperature fell to 1°, but that in less elevated positions the temperature has fallen below zero. *Lancashire*.—Mr. W. Bardney, Norris Green, Liverpool, writes that the weather in that neighbourhood has been intensely cold, the temperature having fallen to zero, with a keen wind drifting the snow 6 and 8 feet deep. *Yorkshire*.—Mr. G. Abbey, Grinkle Park Gardens, states that in his position, 540 feet above sea level, the cold has not been so severe as in lower districts, but a temperature of 3° has been recorded on one occasion recently. *Durham*.—From Mr. B. Cowan, South Shields, we learn the lowest temperature since our last issue has been 22°, with a north-east wind. *Glamorganshire*.—Mr. J. Muir, at Margam Park, records 12° as the lowest in his locality, with a cold wind, which will, he thinks, “keep the fruit buds in their proper season.”

In Scotland the frost has been very severe. Mr. R. W. Brotherston states that the snow is an average depth of 16½ inches, the following remarkably low temperatures having been registered—namely, 3°, 9°, and even 22° below zero, the latter recorded at Blackadder House. Mr. David Thomson, Drumlairig, Dumfriesshire, writes:—“From January the 8th to the 17th inst. inclusive we have had a mean of 24½° of frost each day. The lowest temperature here was 2° below zero on the 17th inst, but on Tweedside 2° and 14° below zero have been registered.” Mr. James Dickson, Arkleton, the same county as the above, gives 17° below zero on the 16th inst. as the lowest temperature; while Mr. J. Forbes of the Buccleuch Nurseries, Hawick, states 4° below zero was registered there on the 17th inst.

In Ireland the weather has also been severe in some districts, the lowest recorded in Tipperary being 10° Fahr., the ice on the lakes being upwards of 14 inches in thickness.

#### GARDEN CROPS IN WEST CORNWALL.

IN the first number of the Journal for the present year “WILTSHIRE RECTOR” gives some very good suggestions on the “The Future of Gardening” and its crops, although he advocates the culture of Onions more extensively, which is not gaining favour with growers, especially our Cornish market growers. The area devoted to them is rapidly decreasing every year, and this year the price of seed is so high it is obvious that still less will be sown.

Broccoli and early Potatoes are the principal crops in Cornwall. Broccoli are at the time of my writing (January 21st) the greater part buried in snow. Parsley has been a profitable crop for the past two years, especially at Scilly, where one man made £20 of the produce from 2 ozs. of seed. Asparagus is also remunerative when well grown and in a sandy soil, and sent to the markets tied in neat bundles. Connover’s Colossal Asparagus is the best. Radishes are somewhat extensively grown, principally the Long Scarlet. The seed is sown in autumn, and the price will no doubt be good this severe weather. The encouraging remarks to gardeners and farmers generally on page 1 were, I am sure, read by many with great interest, and no less hearty good wishes to “WILTSHIRE RECTOR.”—W. ROBERTS, *Penzance*.

#### SCIENCE IN HORTICULTURE.

I AM what my *nom de plume* indicates, a gardener in a single-handed situation, and I want to say something about what appeared on page 24 of the *Journal of Horticulture* under the above heading. As I am only a recent reader of the Journal I do not know who “D., Deal,” is, and as I live presumably hundreds of miles distant from him, it does not much matter; but if I may be allowed to guess, I guess that he is a clergyman, for I have heard some clergymen speak about science in the way

“D., Deal,” does. I have thought it necessary to say that I am a gardener to prevent “D., Deal,” from supposing that I am some scientist who has taken up his pen to defend science; and yet the statement is hardly necessary either, for no scientific man would do more, after reading such a paper, than pray for the enlightenment of all who hold such views as are there expressed.

Now, although I do not think that scientific men would do more than pass such an article as the one referred to with a smile, practical men, like your humble servant, who have derived no small benefit from the teachings of scientific men, are somewhat concerned about the influence of such writings, for young men who may desire to add a little science to their other attainments may think scientific knowledge of little value after reading such an article. To such we would say, “Get wisdom, get understanding;” in other words, learn as much science as possible, and be sure you will reap benefit therefrom, besides being able to laugh heartily when anybody talks about science à la “D., Deal.”

Having said so much by way of introduction, allow me to say something about (I can scarcely say in reply to) what “D., Deal,” says. First, the Potatoes. What scientific man is to bear the odium of what he says, or implies, about change of soil in Potato cultivation? Scientific men have pointed out, and practice has proved them right, that on ordinary soil under ordinary cultivation a rotation of crops is a good practice, because no two crops require the same matters out of the soil or out of the manure. Wheat or Cabbages may leave the soil too poor to grow another crop of Wheat or Cabbage, but good enough to grow a crop of Potatoes, because Potatoes do not require the same kind of nourishment as Wheat or Cabbage: therefore a rotation of crops is sound in principle, hence good in practice. Again, scientific men have proved that Potatoes, or anything else—Gladioli for instance—will thrive on the same soil as long as the cultivator gives (ignorantly or knowingly) to the soil what the crop removes, or, if naturally the soil possesses an inexhaustible supply, of what is needed. Few soils are fertile enough for this, but very many cottagers’ manure possesses just the required fertilising qualities which are needed. The ash heap of those cottagers whose fuel is wood chiefly, along with a very little ordinary manure, contain all that Potatoes want. Again, it is a scientific—that is to say proved—fact that some varieties of Potatoes withstand disease even on unfavourable soils better than other varieties on favourable ones. This one fact is of itself quite enough to account for the state of matters chronicled by “D., Deal.”

I will say nothing on the zinc and copper affair, and think it would have been as well if your correspondent had not said anything about it either. Then it seems that “science” is to be blamed because “D., Deal,” like hundreds more, has been led astray by the popular but unscientific delusion that porous pots were better for plant-cultivation than non-porous pots; indeed, facts are just the opposite of what “D., Deal,” implies them to be, for for years scientific (in the strictest sense of the term) gardeners have proved that the old idea, although popular, was only a delusion; and although “D., Deal,” may justly blame those who “impressed the unscientific delusion on him from his earliest days of horticulture,” he may as reasonably blame the man in the moon for it as science. Science has proved for us that the only difference between ordinary pots and glazed ones is that the ordinary pots get very dirty in a short time, while the glazed pots remain clean. The dirt renders the most porous pot as non-porous as the glazed ones, and we must in justice thank science for substituting clean pots in the room of dirty ones. A dirty pot is worse every way than a clean although glazed one.

Again, “D., Deal,” advertises the fact that Mr. Bull’s *Sarracénias* are dead, and that “blue-bottle and other flies” are (or were) in the dead pitchers. “D., Deal,” evidently knows nothing of the cultivation of these plants, otherwise he would have known that the mere presence of flies could not account for their state; and if he considers that such a want of knowledge, not only of science, but of ordinary practical gardening, is a sufficient answer to the teachings of young Mr. Darwin and others on the carnivorousness of some plants, we fear he will stand alone. If your correspondent wishes to prove by respectable evidence that no plants whatever are capable of catching and feeding on insects, he will have to *do* (not write) a great deal more than merely state that *So-and-so’s Sarracénias* are dead and yet flies are in their pitchers. Such statements will not count for anything even with ordinary people, far less with men of science.

I really do not know what to say about flies being “diet” for *Ericas*. The only unfortunate thing likely to happen is that some other anti-science party will carry the words in his mind and some day preach a sermon on the text, and say that the assertion was made by some noted scientific man! Thus Tyndall was blamed for asserting that the first of living forms were shot to



the earth from some imaginary planet; thus Darwin was blamed for saying that man "sporting" from the monkey; and thus ignorant persons who believe in spontaneous generation quote Huxley(!) in support of their ridiculous views.

I might have replied at more length, but 1, it is hardly worth while, and 2, I fear to trespass on your space. In the meantime I would urge young gardeners to study those sciences which bear on their profession, such as botany, and more especially physiological botany; geology, and chemistry, more especially agricultural chemistry. The great majority of men who read, study science in some of its branches now-a-days, and we think it a pity that all clergymen should not. It is certain that even clever men who try to ridicule what they know nothing of only make them-

selves ridiculous. Science is not what people in general think, and it certainly is not what it is represented to be by "D., Deal." Observation becomes scientific when it becomes accurate and painstaking, and we become scientific men when we are thus accurate in our observations. Science does not spin theories merely; it ascertains facts. True enough, ridiculous theories have been spun and science been burdened with the name of them, but science is not to blame for the fancies and vagaries of those who rave in her name.—SINGLE-HANDED.

#### PEAR DURONDEAU.

As a late autumn Pear this is one of the finest. In size, colour,

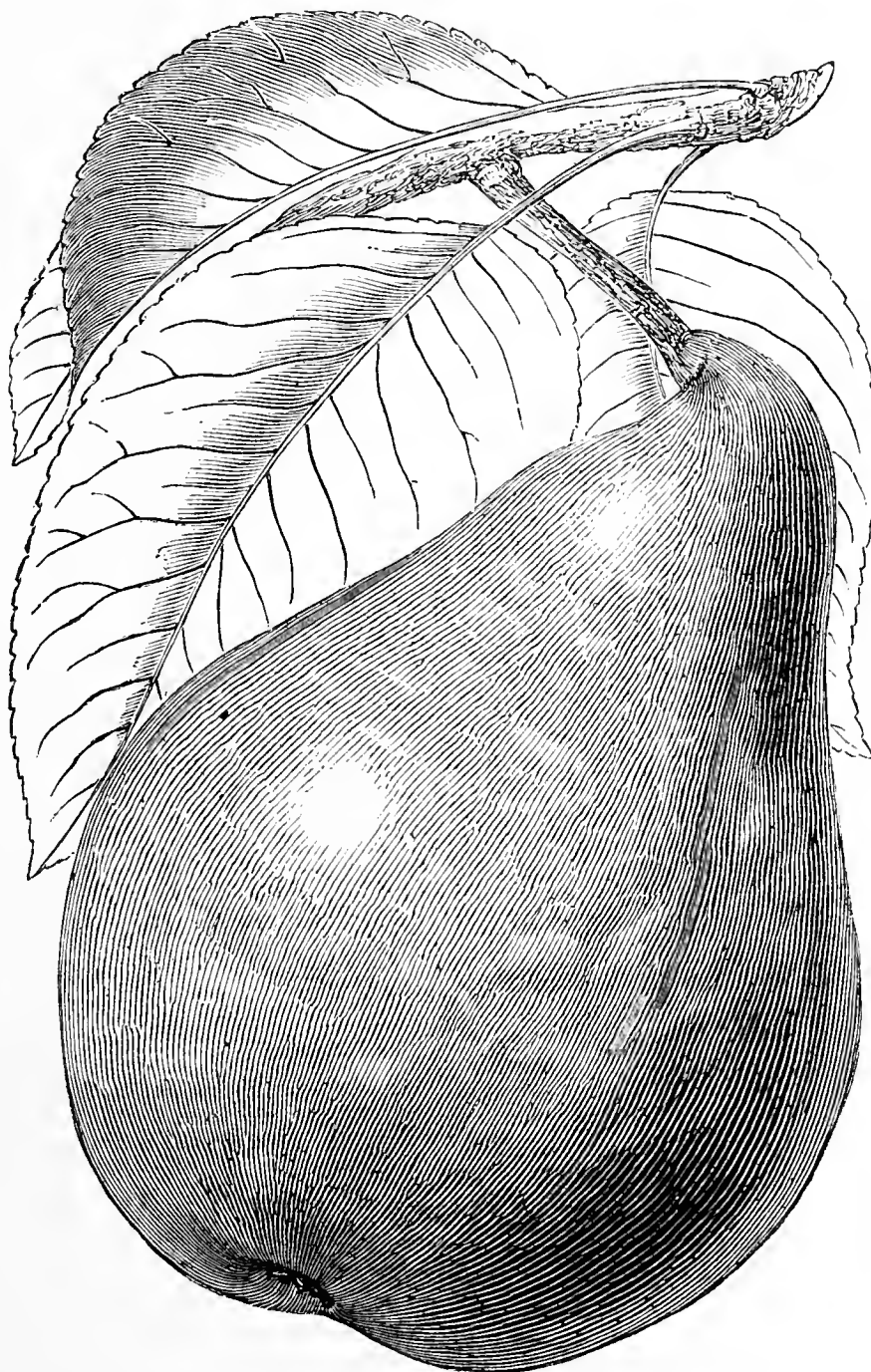


Fig. 15.—DURONDEAU.

and quality it is meritorious, and a dish of well-grown specimens is not easily surpassed on the exhibition table. The finest fruit—especially in colour, which is sometimes very brilliant—is obtained from trees on walls having a good aspect; but excellent produce is gathered from pyramid and espalier trees in good situations. In the north it does not colour so well as in the southern counties; nevertheless it is a hardy variety, and a good if not a heavy bearer. A fine dish is imposing on the dessert table, and those who grow Pears for exhibition should include it in their collections. The "Fruit Manual" description of this Pear is as follows:—

"Fruit large and handsome, regularly formed; obtuse pyriform, and small at the stalk. Skin shining, as if varnished, on the side next the sun, where it is of a lively crimson, marked with broken streaks of darker crimson, and covered with large grey russet dots; on the shaded side it is yellow, with a thin crust of cinnamon

russet, and large russet dots. Eye small and open, set in a rather deep cavity. Stalk an inch long, very slender, and inserted on the end of the fruit. Flesh very tender, melting, and very juicy, sweet, rich, and delicious. A first-rate and beautiful Pear; ripe in the end of October and beginning of November.

"The original tree exists in the garden of the late M. Durondeau, at the village of Tongre-Notre-Dame, near Ath, in Belgium."

#### ZONAL PELARGONIUMS FOR WINTER—GUILLON MANGILLI.

"J. D." at page 48 asks for information respecting this semi-double Zonal, which in my opinion is one of the most distinct in colour and the freest bloomers of all the semi-double varieties. I always understood it was one of M. Lemoine's seedlings, as he

was one of the first of the continental raisers to undertake the dwarf or Tom Thumb type of doubles. I sent it to Chiswick with some of my own varieties, but was not aware that I received a certificate for it. Guillon Mangilli I found one of the best of winter bloomers, the colour being at that period a distinct purple tinted violet. It has long been appreciated in the United States for its good qualities. I had several fine seedlings from it with broader petals, which passed into the hands of my friend Mr. Gilbert, but I never learned whether anything came of them; but when I was a raiser of double Pelargoniums, the strong-habited type with coarse foliage and trusses, such as Gloire de Nancy, were in vogue, and the dwarf semi-doubles, which are so valuable for winter flowering, and which I believe I was one of the first to introduce, were quite unappreciated. Doubtless this arose from the desire of most growers to obtain satisfactory results from their growth out of doors, which the climate of England renders quite impossible. I have, however, seen the best effects produced from the growth of doubles and semi-doubles in the open air with Mr. Pond and others in Jersey.—T. LAXTON.

HAVING observed several inquiries respecting the raiser of the above Zonal, we beg to state that it was raised by Mons. V. Lemoine of Nancy, and distributed in this country in 1875. At that time it was considered a good variety, but new kinds of every year since have been remarkable for their dwarfness and depth of colour. In looking through a house of each double and single varieties it is surprising to observe the difference, some varieties being quite three to six shades deeper than Guillon Mangilli, and it is on this account that it is not found in trade catalogues. Its growth is long and at times straggling, and the pips thin. We discarded it in 1879. Other varieties we find much better not only in habit but in the flowers, more free, a higher tone of colour, and with better rosette-shaped pips. So fine are the doubles that we find by keeping 3° to 5° more of heat in the house where they are situated that they bloom equally as well as the singles during the winter; and although they cannot be compared to the single varieties for brilliancy of colour, yet for cut flowers and withstanding the rough usage they sometimes receive in travelling they are far preferable; in fact, we have no flower to equal them during the winter.—H. CANNELL, JUN.

SINCE Mr. Taylor's article in the Journal on the value of Guillon Mangilli as a winter-flowering Pelargonium, it has naturally excited the attention of many who have a demand for flowers in winter. I have Guillon Mangilli, and another under the name of Jules Mangollen, that are so near alike that I cannot tell one from the other. Both are equally good in the winter, and the flowers opened well in a temperature of 40° Fahr. this year. If mine is the true variety, I would advise those who have one variety not to trouble about getting the other.

My mode of treatment is, as soon as other flowers are plentiful in spring, to cut down the best winter-flowering varieties and put the cuttings singly in small 60's, in a compost of sandy loam three parts, well-decayed manure one part, a little silver sand, and charcoal broken to the size of a small pea. The charcoal dust caused by breaking is placed in with it. The cuttings are pressed rather firmly in. They are generally placed in the cool vinery or cold pit, as they strike well there, and are better than when struck in too much heat. They are much better kept sturdy for winter flowering. As soon as they are well rooted they are shifted into 5-inch pots. A little bone dust is added this time to the compost, and they are placed in a frame or cold pit and kept rather close for a few days, after which the lights are drawn off except in wet weather. All the flowers are kept off as soon as they are seen. It is very rare that they need stopping more than once. Sometimes the old plants are potted-on for winter, but I like the young plants best. Madame Ballet and Wonderful are the next best doubles I have for winter. Good single varieties for the same purpose are Aphrodite, Aida, Placchi, Titania (Pearson's), John Gibbons, Mrs. Hetley, and Mrs. Leavers.—J. L.

[We have had other letters in reference to the variety "Guillon Mangilli," but it would be unfair to nurserymen generally to publish them. The only proper course is for those who have plants for sale to advertise them.—EDS.]

#### STRAWBERRY FARMING.

(Continued from page 23.)

SOIL.—I have just been looking over a list of Strawberries containing the names of nearly five hundred different varieties that have been produced and grown during the present century. Doubtless each of these has been in its day the boast and pet of its raiser, and probably most of them have, even in good faith,

been warranted the best croppers out. Probably most of them have also proved at some time disappointing to over-expectant gardeners, owing mainly to the soil and the variety having been improperly matched. I do not know any kind of fruit the varieties of which are so particular about a proper soil as the Strawberry. Certain varieties seem to thrive almost anywhere, while others are profitable only on light, heavy, or medium soils respectively. It is thus extremely difficult to give the proper advice to beginners as to the sorts they ought to grow. A good general rule would be this—Make yourself acquainted with the varieties that have already proved suitable to your district; depend mainly on these for a few years; meanwhile test a few dozens each of other likely varieties, retaining for extensive planting those that prove the most suitable. A very good selection of promising varieties may be made from any grower's descriptive list if the main characteristics of roots, foliage, and flower stems, as noticed in a former paper, be borne in mind, and also the nature of the soil in which they are to grow. At least four years of trial will be required before we can decide on the most desirable; for not only do we wish to know what will bear the best crops the first or second year, but for a succession of years. Some exhaust themselves in one or two seasons, while others continue to bear heavy crops for five years or more; and in fruit-farming on a large scale such long-enduring varieties are most required.

But while, as I believe, there exist varieties of Strawberries to suit almost any soil, from mere sand or gravel to stiff clay, we must not lose sight of the possibility of making our soil to suit the variety. There are certain general requirements of the soil that cannot be dispensed with if we are to farm with profit. In the first place, it must be sufficiently rich to afford the necessary nutriment to the plants. If not so naturally, it must be made so by liberal dressings of manure well dug or ploughed in. A crop or two of Potatoes well manured is in such cases an excellent preparation. This not only enriches the soil, but ensures that the surface is thoroughly pulverised, aerated, and cleared of weeds. Light soils require heavy manure, such as cow's or pig's, while heavy soils require the lighter manure of the stable. With such a preparation it is not necessary to manure so heavily when the Strawberry plants are to be set, and thus the often excessive growth of runners the first year is prevented. The young roots are encouraged to go further in search of nourishment, and the plants become therefore more robust. A moderate amount of manure applied thereafter year by year as a mulch is much better than a heavy dressing at first and subsequent neglect.

In the second place, the soil must be of a nature to retain moisture for a long time, for the Strawberry loves moisture. It is a mistake to think that a naturally wet soil meets this requirement. I have seen clay lands baked like bricks during a spell of dry weather, while our gravelly soil still retained sufficient moisture. The proper thing is a soil rendered friable by deep cultivation, thoroughly drained if naturally stiff and retentive, and well mulched and mixed with well-decayed manure if of a light dry nature. Such a soil will longest retain moistness, and at the same time speedily dispose of any excess. Our experience in this quarter would seem to prove that a porous subsoil, though only of rusty gravel, is almost of equal importance to a suitable upper stratum. Probably it acts beneficially by allowing the free escape to the surface of the underlying water in the form of vapours. A subsoil of clean sand seems, on the other hand, to have the power of passing moisture downwards but not upwards, which may account for the total failure of Strawberries which I have observed in such a district. Where soils of opposite extremes are immediately contiguous, or, as is sometimes the case, actually superincumbent on one another, much good may result from judiciously mixing the one with the other. Thus by mixing, trenching, subsoiling, draining, manuring, and preparatory crops, or by such only of these as meet the case, we need not despair of preparing a proper soil for this somewhat capricious crop. Success is certain if it be intelligently done, and the expense is really insignificant when compared with the difference between a good crop of, say, three tons per acre, and a poor one of one ton.—WILLIAM RAITT.

THE FORESTS OF AMERICA.—Mr. T. Meehan states that "in the States of Virginia, Tennessee, and North Carolina there are, at the present time, millions of acres of magnificent forest trees. Among these are White Oak, Chestnut Oak, Red Oak, and the Tulip Poplar in immense quantities; with a great quantity of species, useful but less known, used in the leading arts, such as Beech, Birch, Elm, Sweet Gum, Black or Sour Gum, Buttonwood, Linden, Cucumber, and other Magnolias, Ash, Sugar, and other Maples, Locust Chestnut, and Horse Chestnut, Walnut and Hickory, enormous



Sugar Berry Trees, and Dogwoods larger than in the north, besides many others interesting to the botanist, but for which the special uses have yet to be found. Besides these, there are among the resinous trees immense quantities of the yellow Pine (*Pinus taeda*), Bull Pine (*Pinus mitis*), and Post or Jersey Pine (*Pinus inops*), which grows up into forests of straight trees, very different from what we find them in New Jersey and Pennsylvania. Besides these are Hemlock Spruce in some quantity, White Pine in less, and in still smaller quantities Balsam Fir (*Abies Fraseri*) and Black Spruce (*Abies nigra*)."

### COTTAGE GARDENING.

(Continued from page 30.)

A THATCHED-ROOFED cottage with a porch embowered in Jasmine; Roses and Honeysuckle covering its front walls; on one end a Bon Chrétien Pear tree, on the other a Morello Cherry, and on the back a couple of Green Gage Plums. A path leading from the wicket to the porch with a flower border on each side of the path, and behind each border a row of espalier-trained Apple trees, four on each side, all of them so famous for the abundance, size, and quality of their fruit that the names must be given. Keswick Codlin was held in high repute because it hardly ever failed to produce a plentiful supply of its soft yellow fruit, so excellent in tarts and puddings. Duchess of Oldenburgh almost equally productive, and even more attractive with its gaily-striped fruit. Warner's King and Alfriston, both as famous as prize-winners as for the huge Apple dumplings for which the noble fruit was mostly used. Margil and Cox's Orange Pippin alike excellent and commanding a ready sale. Cox's Apple attracting most attention by its high colour; but Margil was quite certain to be equally sought after when it had once been tasted. Hanwell Souring, so much valued for its good keeping and the abundance of its fruit; and a Ribston Pippin, somewhat prone to canker, but rich-flavoured fruit were the pride and boast of the cottage, whose occupant, John Brown by name, always declared, "There's nothing like a Ribson for flavour or sweetness."

The flower borders were thus shut in from the vegetable ground by a fence at once ornamental and useful. The scene as viewed from the wicket formed a pretty picture framed by the espaliers, for the flower borders were always neat and trim and well filled with plants, almost all of them living in the open ground through winter; and the only culture required after they were first planted was division and fresh planting when they became too large or weakly in growth, for it is the habit of plants of this class to spread into large tufts, so that in time they crowd each other, the roots exhaust the soil, the growth becomes weak, and the flowers small. When the division and fresh planting is done some road scrapings mixed with the soil make the plants grow freely and strongly. The tall-growing plants were kept mostly at the back, with a few of the best of them standing singly near the front to show their full beauty and to make a break among the lower-growing plants. The path had a fringe of the pretty little pink-flowered Thrift, with a row of white Pinks behind it. Enough Thrift had been obtained for this by dividing some large old plants that had spread too far in the borders; and the Pinks were the side shoots of some old plants cut off about 4 inches long in July and inserted 2 inches deep in a trench made for them behind the Thrift, just as they were taken off the old plants without any trimming whatever, especial care, however, being taken to settle them firmly in the soil and to keep them well watered. They grew and made plenty of roots that summer, and in another season were fine plants. Of other fragrant plants there were Lavender, Rosemary, Southernwood, Sweet Briar, several Cabbage Roses, a pink Moss Rose, a white Damask Rose, and a couple of the familiar Chinese Monthly Rose. Among the most notable other flowers were Meadow Sweet, Columbine of various colours, Jacob's Ladder, purple and white Rocket, purple Honesty, Crown Imperials, Solomon's Seal, Pansies, Spiderwort, pink Loosestrife, Michaelmas Daisies, Wallflower, Sweet William, Foxglove, Willow Herb, Snapdragon, double Daisy, double Feverfew, Canterbury Bell, Japan Anemone, Everlasting Pea both white and red, a large blue Iris, some pretty clumps of London Pride, and striped Gardeners' Garter Grass mingled together, Lily of the Valley that had spread along near the Apple trees, some curious old varieties of Cowslips or Oxlips, a clump of Christmas Roses, and in a sunny corner by the porch quite a bed of blue Russian Violets, which came into bloom in autumn and continued to bear flowers throughout winter if the weather held mild. A few Crocuses, Snowdrops, and Tulips threw up flowers every spring, but beyond sowing a few pinches of Mignonette and Stock seed there was no addition made to the border flowers in summer. Sweet Peas were always sown near the bee hives twice, to secure plenty of early

and late flowers for the bees. Some scarlet Pimpernel always sprang up among the flowers and was cherished there, and known as the "Poor Man's Weather Glass," because its flowers invariably close before rain.

Not often is it that one sees so many good old flowers brought together in a cottage garden, too many cottagers resting contented with a few miserable straggling plants, the hardy nature of which enables them to continue living and flowering amid the neglect surrounding them. Like many other things closely bound up with a man's home life, a garden affords an indication of character; and the sight of such an one as that which I have described enables one to predict very confidently that its owner has praiseworthy self-respect and is a good husband and father, loving his home so well as to exert himself to render its surroundings bright and cheerful. Occasionally we meet with very successful attempts at higher things. The culture of a few familiar old favourites has awakened a longing for better things, a sense of what is beautiful grows keener, and flowers of more refined aspect and more difficult culture are taken in hand, often to be brought to a greater degree of excellence than is achieved by professional gardeners. Of such I have seen Roses, Hollyhocks, Carnations, Auriculas, Asters, and Zinnias extremely well managed, and not long ago I was asked to look at a fernery that had been tastefully made under the shade of some trees at the bottom of a trim little garden. The space devoted to flowers must of necessity be very limited; and while fully admiring the Ferns, I must confess that the space given them might be turned to better account for a bed of late Strawberries. What! Strawberries in a cottage garden! Yes, why not? I have never seen a good bed of Strawberries in a cottage garden, and have always been puzzled to know why.—EDWARD LUCKHURST.

(To be continued.)



### HARDY FRUIT GARDEN.

THE recently experienced sharp weather will by retarding growth prove advantageous to fruit trees, the buds of which were generally too advanced for the time of year. Advantage should be taken of such weather to wheel in the requisite quantity of rich thoroughly decomposed material for top-dressing the borders containing espalier, bush, and pyramid fruit trees, which are too often neglected in this respect. The thoroughly decomposed material furnished by the rubbish heap is very suitable, choosing favourable weather for pointing it in; but when the roots are near the surface the soil should be scraped away down to the roots, supplying the enriching material, and lightly covering with fresh soil. Charred refuse is also an admirable dressing for fruit borders. Where planting young fruit trees has been deferred the necessary preparations for their reception should be delayed as little as possible. The ground must be thoroughly drained, otherwise it is hopeless to expect fruit trees to continue in a healthy fruitful state. Most hardy fruit trees may be successfully planted during next month, or even later, providing care is taken to expose the roots to the air as short a time as possible. It is always advisable before planting young fruit trees to trench the ground two or more spits deep, being guided in this respect by the character of the soil. Where pruning bush fruits has been deferred on account of bullfinches it is advisable to commence when the buds are swelling freely, or the pruning will enfeeble the growths of the parts retained. The object of pruning is to afford to every branch free exposure to light and air, and to improve or preserve the symmetry of the bushes. Retain the shoots or branches of Gooseberries about 9 to 12 inches apart, and regularly disposed around the centre, cutting back all others to two or three buds, and any strong shoots not required should be removed. Red and White Currants require similar treatment, but Black Currants should only have such growths cut away as are too crowded, shortening those that have extended beyond the limits assigned them. After pruning apply a dressing of manure, and point it in when the weather is favourable. Cuttings of bush fruits may now be inserted, choosing strong straight growths, cutting to a foot in length, and removing all the eyes except three at the upper



part. Raspberries may be pruned, thinning out the canes to from four to six to each stool, securing them to stakes or a trellis, and shortening them to  $4\frac{1}{2}$  or 5 feet. The old canes as well as those of last year's growth not required should be cut off close to the ground.

#### FRUIT HOUSES.

*Peaches and Nectarines.*—In the house started in November the trees will now be flowering, and will need daily attention in fertilising the blossoms. As soon as the fruit is set syringing both morning and early afternoon will be required on all favourable days, the water employed being of the same temperature as the house. The temperature may be maintained at  $55^{\circ}$  at night and  $60^{\circ}$  in the day, with a rise of  $10^{\circ}$  to  $15^{\circ}$  from sun heat. Disbudding must be attended to carefully at this early season, so as not to give a check to the roots. If aphides appear fumigate moderately when the foliage is dry. In the house started this month the buds are swelling fast. Keep the night temperature at  $50^{\circ}$ , falling to  $45^{\circ}$  by morning in severe weather, allowing an advance to  $60^{\circ}$  or  $65^{\circ}$  from sun heat. Syringe the trees morning and early afternoon, so as to allow them to become dry before night. As the blossoms expand discontinue the syringing of the trees, but keep the pathways, borders, and other available surfaces damp, taking advantage of bright sunny days to ventilate freely, leaving the ventilators slightly open all night as well as by day in dull weather. Where there are several houses, and a continuous supply of fruit is required, preparation should be made for starting another house early next month, carefully dressing the trees, securing them to the trellis, and before starting give a thorough soaking of water at the roots at  $75^{\circ}$  to  $80^{\circ}$ . The house may now be closed, but no fire heat applied except to exclude frost. Outside borders should be protected with leaves and litter.

*Cherry House.*—More danger of failure arises from the impatience of heat during the early stages of growth of the Cherry than most other stone fruits grown under glass; this in combination with imperfect ventilation is a frequent cause of disaster. Maintain  $50^{\circ}$  as the point at which to open and close the house, and above that degree maintain a current of fresh air through the house. By day, from fire heat,  $55^{\circ}$  is sufficient, and  $40^{\circ}$  at night, falling a little during the night, but not lower than  $36^{\circ}$ . Syringe the trees on fine mornings; and now the buds are bursting it will be necessary to keep a sharp look-out for aphides, fumigating when necessary. Moisten the surface of the borders whenever they become dry, and cover the surface with about 3 inches thickness of partially decomposed manure as a means of encouraging surface root-action. Trees in pots will need to be examined occasionally, and liberally watered when necessary.

*Melons.*—Little requires to be done in this department at present. The earliest plants are growing well, and if the seed was sown singly and low down in the pots a little warmed soil must be added as the plants advance; or if sown several round the sides, the young plants must be carefully potted-off singly in previously warmed compost, watering sparingly for the present, and keeping them near the glass in a temperature of  $70^{\circ}$  to  $75^{\circ}$ , falling to  $65^{\circ}$  on cold nights; bottom heat  $80^{\circ}$ . Plants intended to be grown on a trellis need not be stopped, but should have the laterals pinched out until the plant reaches the trellis, securing the stem to a stick. Plants intended for pits or frames should be stopped above the second rough leaf. Let the necessary soil—mellow turfy heavy loam, with which is incorporated about a fifth part of old thoroughly decomposed cow manure—be placed in a dry shed at once, chopping it in pieces the size of a hen's egg. Fermenting materials must also receive a due preparation in mixing, turning, &c., if possible protecting them from heavy rains.

*Figs.*—Trees started early in December are in active growth. Maintain the night temperature at  $55^{\circ}$  to  $60^{\circ}$ , and  $60^{\circ}$  to  $65^{\circ}$  in the daytime, commencing to ventilate at that temperature, allowing an advance from sun heat to  $75^{\circ}$ , ventilating between  $70^{\circ}$  and  $75^{\circ}$  freely. In dull weather raise the temperature in the house occasionally to afford ventilation, if only for an hour or two, which will prove beneficial. Keep the bottom heat steady at  $75^{\circ}$ . When the shoots have made a growth of 4 or 5 inches stop them, pinching out the points of each, and remove all superfluous ones, retaining no more than have full exposure to light and air. Copious supplies of weak liquid manure will now be necessary, seeing, however, that the drainage is in good

order. Mulch the surface of the pots, if not already done, with about 2 inches of decomposed manure in a lumpy state.

*Cucumbers.*—As days lengthen heat and moisture may be slightly increased, but it is well to be careful in this respect, as there may yet be much cold weather. Do not syringe the foliage except on bright warm afternoons, when it may be done lightly and early. Damp paths, walls, &c., in the morning and early in the afternoon. Examine the plants not less frequently than once, better twice a week, removing unnecessary shoots. Young plants must be kept near the glass to secure sturdy growth, and nip the point out of such as are required for pits or frames immediately above the second rough leaf. Prepare fermenting materials, so that there may be no avoidable delay when the time for planting arrives. Mellow turfy loam, ridged up about twelve months before using, suits Cucumbers. Have it under cover at once, chopping up as advised for Melons, and adding about a sixth of thoroughly decomposed cow dung.

#### PLANT HOUSES.

*Greenhouse.*—Camellias should be examined at least once a year, and be thoroughly cleaned, which applies equally to those planted out as to those in pots. Where plants in borders have become thick or thin and straggling cut a portion of them in, and after making a season's growth they may be taken up and potted or placed in boxes, their removal allowing more room for the development of those retained, and the plants removed will make good specimens. If there is any appearance of the bed becoming exhausted remove a little of the soil from the surface without injuring the roots, and supply fresh soil. If any plants in pots are suffering from want of root space they should be repotted before the shoots begin to grow, for if deferred until the growth is advanced the season's growth will be injured. In potting make the new soil as firm as the old ball. Light turfy loam is a suitable compost.

Azaleas have now almost shed all the leaves they usually throw off during winter, and their appearance will be much improved by hand-picking, removing all that are yellow. Thoroughly ripened healthy plants are producing young growths from the base of the flower buds, which will not in any way interfere with the flowering, as is generally supposed, for that depends on the well ripening of the buds in autumn. The young growths will cause greater activity at the roots, the plants necessarily needing a little more water. Plants required for late bloom should be in a house with a north aspect. Young plants desired to be grown-on quickly may be placed in heat, to give them as long a season's growth as possible. They will then make considerably more progress than allowing them to start later on.

A few Fuchsias should now be started for early flowering. Cut back plants of a year or two's growth, and repot them in good loam with about a fifth of thoroughly decayed manure. They should have the balls reduced at least one-half. Place in the temperature advised above for *Daphne indica*, and sprinkle overhead occasionally. If a few plants of *Lilium longiflorum* and *L. auratum* are encouraged with a little extra warmth they will flower early and be very useful for decoration. Lilies that have been placed in dark situations must not remain until they have new growth, or they will in a very short time be seriously injured. Remove them at once to a light position, keeping them moist. Supply *Cinerarias*, *Primulas*, and *Cyclamens* advancing for bloom with weak liquid manure, and keep the plants near the glass. Watch for aphides, and fumigate on their first appearance.



#### SUCCESSFUL BEE-KEEPING.

##### THE CHALLENGE—PAST AND PRESENT.

THOUGH I do not quite understand what Mr. Mann means in his challenge published on page 520, December 2nd, 1880, I am glad he has made one for a contest of some kind, inasmuch as it shows that he has the courage to defend his opinions. If he will kindly explain his proposal and leave it open for consideration and acceptance I shall be obliged. It will be remembered by

some of your readers that it was reported the first Crystal Palace show of bees and honey had doomed the poor straw hive to extinction. About the same time the Stewarton hive was strongly recommended and ably advocated. If I remember rightly we were told that both the shape and materials of this hive helped to make the yield of it 200 or 300 per cent. more than other hives. Mr. Lowe of Edinburgh and myself thought differently. The virtues of the Ligurian bees were exceedingly lauded too. I thought then, and still think, that a fair trial of strength, or a Derby day in the apiarian world, would be of advantage to bee-keepers both old and young all over the country. Well, I offered to set down five straw hives of common bees within one hundred miles of Manchester against five hives of any other kind filled with any kind of bees—common, Ligurian, or half-bred. This challenge remained open for acceptance four or five years, and last time it was repeated the readers of this Journal were told that if not accepted in six months it would be withdrawn never to be repeated, owing to my advanced age and feeble health. No one accepted this challenge. Now Mr. Mann offers to meet me. The same reason that made me withdraw my offer prevents me from entertaining the idea of accepting Mr. Mann's proposal whatever it is, and will prevent me from engaging personally in exciting contests. But there may be younger men who may be willing to meet our Perthshire friend on a fair field, and I now ask him to inform us on what conditions would he like a contest to take place?

The question for decision, as I understand it, is, Which hive is best for honey and profit? not Which bee-master is the best man? nor Which locality is best for bees? When Mr. Rennie saw Mr. Mann's challenge he said, "It is easy for Ayrshire and Perthshire bee-keepers to compete with Carlisle folk. You are aware we have a cold clay soil, the worst for Clover I have ever seen. I would be willing to try any of them on the same pasturage." Mr. Rennie, who lived some years in Perthshire and Aberdeenshire, and kept bees there, once told me that the land there is much richer and warmer than it is about Carlisle, and that the Clover there yields honey in greater quantities. The gatherings of his bees on the Clover in Perth and Aberdeenshire astonished him. No satisfactory or deciding contest can take place between hives standing far apart or in different localities. Last summer I had nine hives at Stretford and nine at Chorlton, two villages in Lancashire about a mile apart. At Chorlton the bees did much better than those at Stretford. Rich warm soils are more productive of honey than poor ones, not only where Clover grows, but where Heather and other plants grow. The Carlisle bee-keepers have Heather in their own parish on heavy wet land, about three or four miles from the village; but for the last twenty years many of the hives have been taken to the Carnwath and Tinto Moors, fifteen and twenty miles distant, on which bees gather honey faster. These facts are now mentioned in order to convince all persons that a fair trial of strength can take place only between hives standing beside each other. Believing that Mr. Mann and Mr. Rennie are both very clever and far advanced in the art and practice of successful and profitable bee-keeping, I should be much pleased if an arrangement could be made between them for a contest, which in a good season and well reported would demonstrate what skill in bee-keeping can do for working men, and what bees might be worth to the community. Last year some working men in Scotland made from £50 to £80 each from their bees by attention to them after their regular hours of work. I have been gently reproached for giving encouragements to a class higher than working men to keep bees, but this cannot be avoided. Scotchmen need no more stimulus in this direction, and they needed not the stimulus of last year's great success. When will the working men of England resemble those of Scotland in the matter of bee-keeping? Stimulus and example here are necessary, and will be necessary for years to come; and how small is the desire for information on the subject! Exhibitions are doing something to awaken and keep alive a desire for knowledge of bee-keeping in some places. Reported instances of success do more, and I believe that well-conducted competitions would do more still. In competitions honestly and fairly conducted there is nothing to fear, for those who lose the day gain something better than victory—viz., knowledge by experience; they find out that they are wrong. We cannot learn much, if anything, from those who think as we think.

The difficulties of arranging and carrying out a trial of strength between hives of bees is great, and if the owners of the hives live some distance apart the necessary expense of a trial would be considerable. Working men have no money to spend in pursuit of the mere honours of victory. We live in the hope that the value of bees to the community will be better understood; that our associations for the advancement of apiculture will obtain

greater and more general support, so that larger prizes will be offered at public competitions and exhibitions; and that handsome rewards will be offered for great results in bee-keeping.

May I be allowed to suggest that an attempt be now made to raise by subscription a sum of £30 or £40 to be offered as a premier prize for the best results in 1881 from a hive of any kind managed on any principle? If any respectable committee or existing association will undertake to carry out this idea I will commence the subscription by promising £2. If two premier prizes of £40 each could be raised, one for English and the other for Scottish bee-keepers, a very great step would be taken to advance apiculture in Great Britain.—A. PETTIGREW.

#### THE MANAGEMENT OF HIVE ENTRANCES DURING SNOW.

THE almost arctic weather with which we have been so very suddenly visited, just as many were discoursing upon the fulfilment of the predictions of a mild winter, render opportune the illustration and explanation of a little device which I have proved to be as effective as it is simple. Every bee-keeper who has the experience of a winter or two knows that a sudden outburst of sunshine when snow covers the ground is likely to occasion much loss to his bees and distress to himself unless some precautions have been taken to prevent it. It is the nature of bees to revel in the beams of the king of day, whose advent is to them always welcome, as their call to the pleasures of honest labour. We can understand then how after an enforced confinement because of cold and gloom without, extending perhaps to many days, his bright beams peeping in at the hive door occasion so much excitement that prudence is forgotten, and that the impatient throng, lured abroad by the chilly splendour, soon dot the snow, from which the greater number never rise.

I can imagine nothing more distressing to a real lover of his bees than to stand before his stocks and find that thus the misjudging insects are falling around him in thousands. Many years ago this was once my experience. To stop the hive doors at the moment seemed a remedy worse than the disease, as this would prevent the ingress of those on the wing, and I then could only hope that the sunshine, of which before I never had too much, would soon be cut off by some bank of cloud.

Two precautions have hitherto been recommended to prevent this evil. First, to close the hive door; second, to shade the front of the hive. From the first of these I entirely dissent, believing that bees never need to be, and never should be, confined to their hives except when on a journey. Quietude is one great essential of successful wintering and bees no sooner discover that they are prisoners than a most exhausting and distressed excitement takes possession of them. If bees with open door be placed in perfect darkness in a room they will not leave their hive, and rest will reign within; but if the hive door be closed uproar is the result, and muscle and nerve, honey and pollen, are all together going to rapid destruction at once. An instance came under my notice of a bee-keeper attempting to winter some imprisoned stocks in a dark cellar. The buzz caused him to desist very early in the spring, and every bee died soon after removal to its outdoor stand. The reason is apparent—useless battering against the prison walls had beaten the life energy out of the stocks, and the chill of an English spring gained an easy victory, simply having to complete the work of exhaustion, which the misjudged care of the bee-keeper (?) had commenced. If bees are so kept to their cluster by cold that they cannot attempt to leave, and so do not learn their imprisonment, the confinement is clearly useless; but if they may attempt to make an excursion abroad it is as clearly mischievous—so mischievous, indeed, as to be not infrequently the proximate, and sometimes the immediate, cause of death to the entire colony. That it may be the proximate cause I have already pointed out, while if dead bees gather in the stock they will be brought to the "perforated zinc" door, and as they accumulate the stoppage of all ingress of the essential oxygen will enable the cold to do its work.

The second recommendation—the shading of the hive door, is effective, but it demands time and attention, and has the disadvantage of somewhat altering the appearance of the hive front, and so unhappily hindering the return of the bees that have ventured upon a cleansing flight. To save time and conquer the little disadvantages named I have introduced a modification into my "anti-robbing porch," of which I wrote in the issue of October 11th last, and the entrance as it now stands I find so extremely useful that I would urge the adoption of it with all earnestness consistent with modesty.

The value of this entrance in preventing robbing need not again



be fully stated, while it will be seen by comparing the illustrations now given with the article referred to. The slip (A B C, fig. 16) is cut about 2 inches wide, and quite twice the length of the hive opening. The thin blocks (D and E) are of wood, about three-eighths of an inch thick, while they are made from a single piece by saw cuts, giving to one part a point and the other an indentation. The piece D is fixed to A B C, while E is free to slip backwards and forwards. These are now turned down upon the

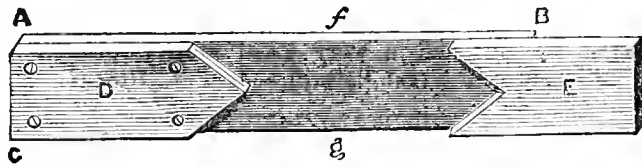


Fig. 16.

alighting board, when they are seen as in fig. 18. In summer the parts will stand in the relation shown in fig. 16, when the point and indentation present no impediment to the passage of the busy throng from *f* to *g*; but for weak stocks, or when robbing may be apprehended or is observed, or after swarming if the weather be cool, it will be desirable to narrow the entrance, causing E to approach D, more or less giving to it the position in

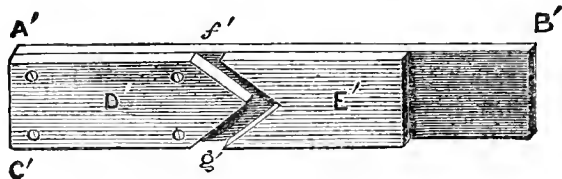


Fig. 17.

fig. 17. The bend in the tunnel (*f'*, *g'*) will assist in protecting from cold pulsating winds, and also add to the difficulties of an attacking party in the case of robbing, while in winter it not a little saves from draughts as aforesaid, but absolutely overcomes the difficulty which has engaged our chief attention by totally preventing the possibility of sunshine entering the hive. A small stud placed under A B C, opposite the point of D, fig. 16, will prevent the danger of the pieces being pushed so near to each other

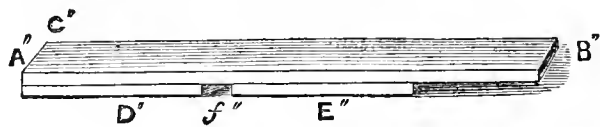


Fig. 18.

that the mouth may be practically closed. He would be but a poor carpenter who could not for himself make this form of entrance, which costs but little both in time and material, and seems to cover all ordinary emergencies.—F. CHESHIRE, *Avenue House, Acton, W.*



\*\* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Pelargonium "Guillon Mangilli" (A. S. D.).**—You will find this variety, which has been so much inquired for of late on account of its value for winter blooming, advertised in the present issue of the Journal.

**"Rosarians' Year Book" (R. J. C.).**—It can be obtained either through a bookseller or direct from the publishers, Messrs. Bennrose, 23, Old Bailey, London, or at Derby.

**Insect on Vines (W. Martin).**—The specimens sent are pupæ of some two-winged fly, species uncertain till some are reared. Kindly state under what circumstances they were discovered.

**The Pomegranate (J. S. U.).**—This plant, which is the *Punica Granatum*

of botanists, is a member of the natural order Myrtaceæ. It is grown outside in the southern counties of England, generally trained to a wall with a sunny aspect, where it flowers; but we do not know an instance of fruit being matured. A moderately light garden soil suits it, and it needs little attention, except in training or thinning the shoots. You will find an engraving and description of the plant in No. 759 of this Journal, which may be obtained from the publisher, post free 3½d.

**Potatoes and Apples Frozen (F. J.).**—According to your description of the tubers they will be all spoiled if they remain where they are however thickly you may cover them now. See our reply to another correspondent. Apples will endure much more frost than Potatoes; and probably if you cover them thickly and let them remain covered until the frost is gone, a portion of the fruit at least will remain sound. Some varieties of Apples are more hardy than others, but all of them will resist several degrees of frost. If you bury the Potatoes you must do so at once. If you remove them to a warm temperature the sudden change will inevitably cause their destruction.

**Glazing without Top Putty (F. C.).**—The information required is at page 550 of our last volume—viz., "In forming the rebate in the rafters and sashbars half an inch is deep enough, and a quarter of an inch wide for the reception of the glass," the glass to be bedded in putty in the usual way, and secured with copper tacks. "No upper putty should be used, but have the putty (not wood, as stated at page 550) dressed off level with the glass." The rebate is formed in the usual way, and does not differ from that of sashbars for windows or glass structures, and is different from a groove, which is unnecessary and unsuitable. The method of glazing is simply the old-fashioned one without putty over the glass. It is important that the glass be firmly embedded in the putty; the roof will then be perfectly watertight.

**Potting Trees for Orchard House (Idem).**—The trees now in the open ground should be taken up as soon as the weather is favourable, and have the strong roots cut back to admit of their being placed in the pots, but the fibres should be carefully retained. The pots should be well drained, and some of the rough of the compost placed over it to keep it free. Turfy loam rather strong is the best material for potting, working it well amongst the roots and making it firm. The Apricots should also be potted with as little delay as possible, and should have the strong roots shortened back, but the fibres carefully preserved. They should be potted firmly, adding about a tenth of old mortar rubbish to turfy loam. The potting of them will not prevent their fruiting this season, but being maidens last year it is doubtful if they have fruit buds. They will need some slight pruning. The Apple sent is not King of the Pippins, and we are unable to determine the name from the specimen.

**Frozen Potatoes (K. D., Bradford).**—We know of no plan equal to burying them in the ground. Dig a trench, spread the Potatoes as thinly as possible, and cover them with the soil, which should be mixed with the tubers; if this does not remove the frost and leave the tubers sound, nothing will that we are acquainted with. Potatoes that are left in the ground all the winter are usually sound in the spring, though, on account of their nearness to the surface, it is almost or quite certain they had been frozen. We have often observed a Potato that has been partly embedded in the soil frozen above where exposed, and sound below where embedded, yet the frost must have penetrated the soil below the Potato.

**Figs not Swelling (S. G.).**—Probably if you rely on smaller fruits in the autumn for producing the first crop in spring that the fruit will swell and ripen freely. If it does not, the failure will result either from imperfect fertilisation or some check received by the roots, or by sudden fluctuations in the temperature of the house. The flowers expand when the so-called fruit has attained to about a third of its size. If you refer to our issue of January 31st, 1878, you will find the Fig blossom illustrated, and much interesting matter relative to it. If you do not possess the number it can be had from the publisher in return for 3½d. in stamps, and a request that he send you No. 379 of this Journal.

**Potatoes for Exhibition (A. Clark).**—*White Rounds*—Porter's Excelsior, Model, and Schoolmaster. *White Kidneys*—International Kidney, Covent Garden Perfection, and Veitch's Improved Ashleaf. *Coloured Rounds*—Red Emperor, Radstock Kidney, and Blanchard. *Coloured Kidneys*—Garibaldi, Late American Rose, and Feu's Bountiful. As no one can rely on staging eight dishes of the best character from the same number of varieties we have named twelve sorts from which, under good cultivation, you may hope to select the number of dishes you require. Of Beets, Carter's Perfection, Suttons' Improved Dark Red, and Nutting's Selected are all good for exhibition.

**Heating with a Paraffin Stove (A. J.).**—The small stoves are useful, but too much is often expected from them. A horse cannot do so much work as a steam engine, nor a boy so much as a man. If the horse or boy are taxed beyond their strength they succumb, and the work is not done at all. It is the same with stoves. If overworked—that is, overheated, they, instead of preserving the plants, injure them. There is no remedy for your Cinerarias and other plants that are shrivelled; but some of the injury at least might have been averted if you had been satisfied with preventing the temperature falling below freezing instead of raising it to 40°. When stoves are highly heated for any length of time they must be injurious to plants. These stoves, when sufficiently large or numerous, will preserve certain plants from frost, but there is a limit to their effectiveness. The weather has been exceptionally cold of late, and your stove has been unequal to the work you expected it to do. We know of many other failures of a similar nature. When one stove is only adequate during an ordinary winter, two are requisite when the weather is unusually severe.

**Potting Vines (Subscriber).**—The best time for potting such Vines as require it is when they are commencing fresh growth in the spring, and before the shoots are liable to be broken during the operation. All Vines that are in large pots do not need repotting; it is only when the pots are crowded with healthy roots that the practice is necessary. Under other conditions repotting might be injurious rather than beneficial. The work must be done, and especially the watering afterwards, with great care; it is work for skilled gardeners rather than for amateurs and learners of Vine culture in pots. If you have not had previous experience in the work in question we do not advise you to repot all the Vines, but remove such of the soil from the pots as you can without disturbing the roots, and add a fresh compost of loam and a sprinkling of bone meal, eventually top-dressing with manure. By noticing the effects you will then gain experience of practical value, and be able to teach others.

**Camellias not Expanding (Florist).**—We submitted the specimen you sent to a skilful cultivator of Camellias who has the charge of a very large and superior collection of plants, and the following are his remarks on the subject—"It is difficult to ascertain the cause of Camellia buds failing without knowing minutely the circumstances under which the plant is treated. The cause may be simple and brought about by the neglect of some small point in culture, or it may be a natural characteristic of the variety which the utmost care and



best cultivation cannot remedy. The thick round-budded varieties, such as the one sent, are far more liable to fail than those with sharper-pointed buds. Camellias such as Countess of Derby, Marguerite Guillon, and others that are similar in the bud often cast off the buds when they commence unfolding, even when the plants appear in the best possible health. Varieties that are at all subject to this, and receive even a slight check, not unfrequently cast their buds, when more reliable kinds would not be affected by any such cause. The slightest check through dryness at the root, a very dry atmosphere caused by sharp firing during frost, or when firing has to be resorted to too quickly, excites them, and in consequence causes a number of buds to fall. One of the surest causes of failure was suggested last week—viz., not thinning out the buds. Plants in the best possible health, if allowed to carry every bud they set, would soon be exhausted, and a greater percentage of the buds in all probability would fall sooner or later. The number of buds a plant is capable of opening entirely depends upon the condition of the roots and the luxuriance of the plant. While the buds are swelling Camellias require more support than at any other stage, and if this is judiciously given a great number of flowers would expand which could not otherwise do so. The health of Camellias cannot always be taken from the appearance of the foliage, which in many cases appears healthy even when the roots are unsatisfactory. When in this condition the growth made is very short and weak, and more buds are set than the same variety would produce if in a robust condition. The soil about the roots in a wet, sour, unhealthy state will cause the buds to fall or decay. Again, if the young growth by any excitement advances early according to the forwardness of the buds the flowers seldom expand. Marguerite Guillon is very subject to this, as is also Weltonensis, a thick-budded white variety, very similar in the bud to the one sent."

**Frozen Vegetables (W. J. M.).**—It is doubtful if the stems of the Celery to which you allude were really frozen, as the frost you record would not be sufficient to penetrate the soil unless the ridges were unusually narrow. The tops of the plants if not covered would be killed, and the decay would gradually spread downwards, and eventually spoil the crop. It is for this reason that Celery should always be protected by covering the rows with straw or litter; still if the plants were frozen in the soil, as they sometimes are, they would be quite safe to use either in the ordinary manner or in soups, provided the heads were thawed very gradually by placing them in cold water, and the Celery was afterwards firm, not soft. When frozen Celery is washed in warm water it is impaired in quality if not spoiled. We have grown many thousands of heads of the variety you name in a district where the winters are much more severe than your own, and with care in protecting have had produce of excellent quality until the end of April. Some of the red varieties are more hardy than the white, but none is, strictly speaking, "frost-proof" when grown in the usual manner in gardens. Many vegetables are better after having been frozen than before; Savoys and the different varieties of Kales for instance, also Brussels Sprouts. Even if these are so hard that they can only be cut with great difficulty they are perfectly safe if, after having been immersed in cold water for a time, they remain green and fresh, but if soft and pulpy they are not fit for use; consequently frozen vegetables should never be cut and placed on the fire at once, nor should they be washed in warm water. As you conceive the subject is of importance information cannot be published too soon, and at least a week would be lost by the insertion of your letter before any reply could be inserted; hence we adopt what you will agree is a more prompt and practical mode of dealing with the subject.

**Potatoes for Market (Henley).**—Early Potatoes, as a rule, are more profitable than late varieties, as the former can be generally placed in the market before the disease seriously attacks the crops; but as you tried both early and late sorts last year your own experience will be your best guide. The nature of the soil and local circumstances must be taken into account in determining a question of this nature. Early crops do not exhaust the land to nearly the same extent that late crops do that are growing for three months longer; and by growing earlier a second crop of some kind can be had by planting winter greens, or sowing Scarlet Runners between the rows, or planting Coleworts or Strawberries after the Potatoes are cleared. Strong plants of Strawberries planted in August in good soil would, by frequent hoeings and a dressing or two of soot or other fertiliser in showery weather, produce a good crop the season following; but the plants must be good to begin with, and be planted under favourable conditions. Myatt's Prolific is one of the best of the early kidney Potatoes. In some districts the Early Rose is profitable, where the soil is of a dry nature and the produce of good quality. The American Beauty of Hebron is likely to prove a good early market variety. The quantity required for planting an acre depends entirely on the size of the sets and the distance of planting. About 16 cwt. of fair-sized sets would probably suffice, but we have known a ton of larger sets employed. Small trashy seed is not the most profitable, while a medium-sized tuber in good condition will yield about as well as a large one. The condition of the tubers is of as much, or more, importance than their size. A moderately small tuber with a strong sturdy growth before planting is better than a larger set from which the first growth has been removed, or planted with a cluster of thin weak growths. The time of planting must be determined by the condition of the seed and the state of the soil and weather. The seed tubers of all varieties of the early kidney type should have short stubby growths when planted—that is, the eyes should have fairly started; there will then be no blanks in the rows. But if the growths are much advanced they might be injured in the rough handling that usually occurs when planting large quantities. If Ashleafs are planted in a dormant state several sets often fail to grow. The condition of the sets must therefore be first considered. Next the soil. In light and dry soils we have found planting 4 or 5 inches deep in February or early March the best; in strong heavy soils a month later has been advantageous. The sets then have made more growth above ground, and have been planted nearer the surface—sometimes only an inch, or even less, below—according to circumstances. Then the weather must be considered. Never plant when the ground is in a wet sticky state. Far better is it to wait for a week or a fortnight, as for early Potatoes the soil cannot be too dry and powdery when the sets are planted. A sprinkling of superphosphate of lime in the rows before the sets are covered, just making the ground white, or say a handful to every 4 yards, is beneficial in nearly all soils. These remarks, founded on many years of experience, may be of use to you.

**Inarching Vines (Reader).**—You had better inarch to the young cane, taking a slice off it from 6 inches to a foot long as most convenient, and almost, or quite, down to the pith, with a corresponding slice in the cane to be attached. You will effect a quicker and firmer union than by merely removing the bark to the extent of a few inches. The slicing must be very smooth, and the "fit" of the two portions accurate. Secure them together with soft matting tied as tightly as you could endure the same ligature round your finger for a month, and cover the inarched portion with moss, which should be syringed occasionally. When the buds commence swelling is a good time for the operation, and one bud of the Alicante above the union will be sufficient; you had better, however, leave two for fear of an accident, and when one growth is safe the other can be

stopped as required. Let the new cane have plenty of room to develop its foliage, and light to perfect it, by removing the growths from the parent rods as needed. When Vines are inarched, overcrowding of the new canes often follow, and the success that is hoped for is consequently not attained.

**Names of Plants (C. F.).**—Azalea amœna. (J. S.).—Berberis Darwinii. (F. T. A.).—1, Yucca aloifolia variegata; 2, Specimen too small, perhaps Y. quadricolor.

# COVENT GARDEN MARKET.—JANUARY 26.

LITTLE or no business doing, our market being still completely frozen ont.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines..	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges .....	½ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	2 0 4 0
Cobs.....	½ lb	2 0 0 0	Pine Apples ....	½ lb	1 0 2 6
Gooseberries ..	½ sieve	0 0 0 0	Plums .....	½ sieve	0 0 0 0
Grapes .....	½ lb	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ 100	12 0 18 0	ditto .....	½ 100	0 0 0 0

## VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli .....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers .....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery .....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 6	Scorzonera .....	bundle	1 6 0 0
Endive .....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 0
Fennel.....	bunch	0 3 0 0	Shallots .....	½ lb.	0 3 0 3
Garlic .....	½ lb.	0 6 0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 6	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



## POULTRY AND PIGEON CHRONICLE.

### AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 57.)

WE will now refer to a new machine exhibited at the Carlisle meeting of the Royal Agricultural Society by Mr. Frederick Savage, King's Lynn, Norfolk, and styled a combined self-acting presser and drill, and worked in the trial field by another machine, which the Judges' report describes as a ten-horse-power agricultural engine, the driving wheels forming the winding drums, which is usual in these engines. The anchors are self-moving, and the whole weight rests on the retaining tines. The new implement to which we wish to refer was shown in connection with this tackle—namely, a four-ring self-acting presser and drill combined, to be used behind the plough. A swivel foot lowered on to the ground by a lever takes the weight of the presser in turning at the head lands. A small harrow is also attached and drawn behind the presser for covering in the seed. This is the first implement of the kind ever made, so doubtless many improvements on it will appear in time, and in certain hands on some soils will probably prove of considerable value. This concludes the short notice by the Judges of implements and machinery at the Carlisle meeting. Our reason for bringing this implement to the notice of the home farmer is because we see in the invention the means of attaining that which we have for a long time in practical farming desired to see—viz., the ability to perform by ploughing, pressing, and seeding the land simultaneously by one operation. It will be no doubt easily adapted both for steam power and horse or ox labour in the Wheat season, as well as the Oat or Bean and Pea seed time. For the first object it is very important, because after the early part of the month of November the land cannot often be ploughed and left unseeded without incurring the risk of serious

delay, for in our climate we usually get either night frosts or rain; in either case the land often cannot be seeded.

This matter we have often referred to under "Work on the Home Farm," by recommending that the ploughing should never be done at the late period, unless it can be seeded at the same time; but this involves special arrangements of the working power both of men and horses, so that as fast as the land is ploughed it should be drilled and finished off, so that at any time of the day if rain should set in the work may be safe against any succeeding weather. We have often heard it readily admitted by practical men that this plan of proceeding is desirable; but that upon some farms, unless a considerable number of men and horses are available, it cannot be carried out exactly to an hour without some disadvantage as regards economy of labour. From this circumstance we can see the advantage of a presser following the ploughs and drilling the seed, and covering in with the harrows at one operation, in order that upon change of weather at any period of the day the work shall be in a finished state so far as it has been done as not to suffer in any respect. There is another point from which an advantage is to be derived, because the drill tubes follow in the line of the presser grooves, depositing the seed with such regularity and depth that the seed will not only be well covered, but the young plants will find a firm bottom, so desirable for the successful growth of Wheat. The comparison with ordinary drilling is therefore in favour of the new machine in various ways, and we reckon that a saving of seed would occur, amounting to one-fifth, if seeded by the press drill.

Referring to the seeding of Oats after lea, or the seeding of Beans or Peas, the advantages of burying the seed at a good depth and with a regularity not attainable by the ordinary drill, owing to the saving of seed, which would be considerable, as well as the importance of all the work necessary being done simultaneously. There was also exhibited at the Carlisle meeting a machine for planting Potatoes in the balk or stretch, two rows at a time. This was brought out by Messrs. Murray & Co., Banff, and it was awarded a silver medal, and called a "Potato Planter," price £18 10s., which when tested by the Judges on the grass in the yard gave every satisfaction. The Potatoes were deposited at perfectly equal distances, and in a length of 56 yards there was only one miss in each row, which probably would not have happened had the machine been working in the field. The cups which take up the seed are each a link of an endless chain merely hooked into each other, and on the end of each cup is a tail, which, as the chain turns over the supporting wheels, rise up through the bottom of the succeeding cup, thus not only ensuring the seed leaving the cup at the right moment, but clearing out any dirt that may have accumulated there. This is an important improvement, and effectually remedies a hitherto existing fault. Motion is communicated to the cups by means of the well-known Ewart's detachable drive chain, and there is also an adjustment for properly balancing the machine when going up or down hill. The seed can also be dropped at three different distances apart by a very simple arrangement of change wheels. The machines are made either for double or single rows. We can see very plainly that this machine is of great consequence, either for large or small occupations, when the hand labour is scarce. There is also greater surety of a regular setting than when done by hand-dropping, for we have often seen the seed irregularly dropped by the planters, and often a line or part of one missed altogether for want of sufficient care between the persons in planting.

These machines are made for planting between the stretches, so that the manure may be either yard or box manure laid between or artificials sown broadcast, so that when the stretches are reversed the manure and sets are covered in at one operation. With respect to the single-row planter we have no doubt but this may be made to answer the purpose of planting after the plough as the work goes on, the application of manures being the work of hand labour. We understand at the trial of the machine whole sets were only used; it is, however, just a question whether cut sets would work so well in the cups. For the present we conclude our notice of implements, &c., but hope to return to the subject at another time.

#### WORK ON THE HOME FARM.

**Horse Labour.**—This will be resumed when the frost and snow have gone; and as soon as the land is sufficiently dry the fallows, which have been left exposed during the winter, may if quite clean be scarified and reduced to a fine tilth in readiness for the drilling of Barley. We have sometimes known it done in the month of January, and it is no bad rule to take the first season, as the produce at harvest is more likely to prove a malting sample than that obtained from late sowings. At any rate we prefer sowing Barley early rather than Oats. We may observe that Beans, Peas, and summer Tares may be sown or drilled at the earliest season, whether it happen in the end of January or first week in February, in preference to either Barley or

Oats; and we consider a fresh furrow better than a stale one for any pulse crop, but especially for Peas, and for this crop we like to plough and sow simultaneously. We must also call attention to the advantage of a mixed crop, such as Beans with Peas or Vetches in admixture, for practically all these are more or less speculative in their yield. The object, therefore, of mixing is to insure as near as possible a full yield from one of them, for we find it is very seldom that Beans and Peas or Vetches suffer similar injury from the effect of the season, whether it is very wet or very dry. There is one point, however, worth notice by the home farmer—that in a very dry season, although it may be and is generally favourable for the yield of Wheat, but the reverse for Lent corn and the pulse crops—the home farmer should be early in sowing his Barley and pulse crops, for this will be found correct management nine years out of ten, whether the season after seed time proves wet or dry.

In consequence of the stormy weather in the autumn very few fields under autumn tillage could be entirely cleaned and freed from couch in a satisfactory manner; and at the time of fallowing, when the land was intended to lie the winter months, we advised that all those fields which were not cleared of couch fit for deep ploughing should be only rafter-ploughed, and thus left for the winter. As the frosts lately have been severe this land must have been greatly benefited by them, so that as soon as the land can be worked, and yield to harrows and drags, clearing off the couch may commence immediately where it has been rafter-ploughed only. Any of those fields which have been deeply ploughed and left for the winter, although the land has been benefited by frost, yet still require much costly labour to clean out the couch as compared with the rafter-ploughed land where the grass was kept on the surface. When the yard or box manure is intended to be applied for early Potatoes or, in fact, second earlies, it will forward the work to have the dung in heap near to where it will be required for use. Still, we do not advise the use of dung for early Potatoes, owing to the time required for laying out and spreading. We prefer rather to apply the best guano as a hand-dressing strewn into the furrow with the Potato sets at the time of planting. This practice is so simple, and takes so little time when the guano is mixed with damp ashes to prevent its flying before the wind, that where Potatoes are planted on a large acreage the time saved in the application of the artificial manure as compared with that of dung often makes the difference between a good seed time and a lost one, for often whilst carting and spreading dung is being done the Potatoes might have been planted and the land dressed with guano. Besides which, our long experience enables us to say with confidence, irrespective of the time gained in planting, that the application of 5 cwt. per acre of the best Peruvian guano or its equivalent has generally proved equal to any amount of town, yard, box, or stable manure which may be applied for the crop. We state this in order to show the home farmer that it is not necessary, as the market gardeners say, to apply heavy dressings of costly manure and labour in order to obtain a successful growth of Potatoes.

**Hand Labour.**—The cattle man now on the farms where stock of all ages are wintered must be careful to feed and shelter the animals according to their age and the purposes for which they will be required. For instance, the calves intended for beef at the earliest period should be kept entirely under cover in twos or threes, and fed with a fair allowance of cotton cake—say 2 lbs. each per day—with sweet hay chaff, and from 15 lbs. to 20 lbs. of cut Swedes per day, the cake being in meal and mixed with the cut Swedes. It is sometimes preferred to give maize or barley meal at the same cost as decorticated cotton cake, and to this we offer no objection. The calves intended for dairy stock may have cut Swedes and hay mixed with sweet straw in chaff, and be kept in well-littered yards and sheds. The cattle rising two years old will now, if intended for early killing, be well fed with an allowance of 4 lbs. of linseed cake meal and 2 lbs. of bean or maize meal per day with good sweet straw *ad libitum*, and about 56 lbs. of cut Swedes with the meal strewn over. They will then, if well bred and healthy stock, whether heifers or steers, be ready for sale at from twenty-four to thirty months old if they have been for the duration of twenty weeks kept in separate boxes under cover. The heifers for the dairy rising two years old will now for the most part be in calf if the bull has run with them as we advised in August last, and should be fed in yards and sheds with about 40 lbs. of cut roots per day, with 2 lbs. of cotton cake, and ordinary hay or straw mixed in chaff. In this way they will be in good condition at calving time, without being in too high condition, as when overfed often induces the quarter-evil or parturient fever at calving time. Cattle in the boxes of any age, whether of cows, heifers, steers, or oxen, should be fed at the outside allowance of food for at least twenty weeks before sale, and they often pay well for holding on at liberal feeding until the end of June or early part of July, especially when a good lot of Mangold has been carefully preserved for their food. The food we recommend for these is the same as that given to the baby beef animals, except that in case the Mangolds do not hold out good Clover, Trifolium, or Saintfoin *ad libitum* should be given instead.

#### VARIETIES.

**THE PALACE CUP COLOURED DORKING HEN.**—Mr. J. Taylor's celebrated old Dorking hen (formerly Mr. Parlett's), the winner of



the cup at the late Crystal Palace and Dorking Shows, has, we understand, recently changed hands.

— COLOURED DORKINGS.—We hear that Mr. James Cranston of Thornhill, N.B., who has exhibited Silver-Grey Dorkings for the last two years at Birmingham and elsewhere with such remarkable success, has recently gone in for coloured Dorkings, and we observe his name in the prize list at Kendal.

— LIABILITY OF RAILWAY COMPANIES.—The case of Adams v. the Great Eastern Railway Company, decided the other day at Ipswich County Court, is of some importance to fanciers. The Judge following another case (*Ashenden v. the Brighton Railway Company*) held that the bye-law framed by the Companies, limiting their liability in the case of dogs to £2, was void as being unreasonable, and a verdict was given for the plaintiff for £50, the proved value of a dog sent by the defendant Company's line and suffocated during its journey. The same bye-law generally provides for poultry and Pigeons as well as dogs, and the decision is thus of interest to our readers.

— PURE-BRED POULTRY.—Apart from the greater pleasure which it affords, it pays better to keep and breed pure-bred fowls than to breed and feed a lot of mongrels, which latter many do for fear of the expense of buying a few pure-bred fowls to start with. In determining which breed of fowls to get, make up your mind at the start that no one breed can or does possess all the desirable qualities you are in search of. If you wish a breed for laying get Leghorns or Hamburgs; if you wish them for weight get Brahmas or Cochins; if you wish them for ornament get the Polish; but give up the idea of getting a grand combination of all these qualities in one breed. Make up your mind what you wish in the way of fowls, and then select such breeds as will answer those requirements best. Give them good comfortable quarters, supply them liberally with water and food, giving them requisite care and attention, and you will never have cause to regret your investment in pure-bred fowls. When your neighbours see what fine birds you have they will naturally want some of them for a sitting of eggs, and thus will a demand be created which will amply repay your first outlay of cash and subsequent trouble and expense. If you had bred nothing but mongrels there would have been little or no demand, and then merely at market prices. A good trio of pure-bred fowls, of almost any kind, can now be bought at fair figures from reliable breeders in most sections of the country.—(*Farmers' Magazine*.)

— THE "MECHI FUND."—We are glad to state that the appeal of the Committee of the above fund is being liberally responded to by the public, and that several subscriptions have been received in addition to those already published. These include the Duke of Devonshire, £100; Mr. M. T. Bass, M.P., £50; Mr. Pickering Phipps, £50; Messrs. Barnard, Bishop, & Barnard, £26 5s.; Sir Thomas D. Acland, Bart., M.P., £25; Mr. Alderman Fowler, M.P., £25; Mr. Frederick T. Mappin, £25; Messrs. Ransomes, Head, & Jefferies, £25; Messrs. Sutton & Sons, £25; Mr. John Corbett, M.P., £21; Captain Jay, £21; Mr. O. E. Coope, M.P., £20; Mr. W. De La Rue, £20; Mr. James Garrett, £20; a Friend, per Mr. James Garrett, £20; Mr. W. Goldsmith, £20; Mr. F. W. Grafton, M.P., £20; Mr. Robert Hanbury, £20; Earl Spencer, £20; Mr. John Walter, M.P., £20; Messrs. E. Cook & Co., £10 10s.; Mr. J. Corke, £10 10s.; Mr. James Spicer, £10 10s.; and several others of similar amounts. The Committee are making a systematic appeal in the interests of the fund, and already applications—signed by the Lord Mayor, the Marquis of Huntly, and Mr. Samuel Morley—have been addressed to Members of both Houses of the Legislature, provincial Mayors, members of the Common Council of London, city companies, bankers, brewers, agricultural engineers, seedsmen, and agricultural chemists. It was stated at the last meeting that Sir Henry W. Peek, Bart., M.P., Sir Sydney Waterlow, Bart., M.P., and Messrs. Hunter Rodwell, Q.C., M.P.; James Round, M.P.; and Clare Sewell Read had consented to join the Committee, and that the following banks would receive subscriptions on behalf of the fund—viz., Messrs. Coutts & Co., 59, Strand, W.C.; Messrs. Glyn, Mills, Currie, & Co., 17, Lombard Street, E.C.; Messrs. Hoare, 37, Fleet Street, E.C.; Messrs. Martin & Co., 68, Lombard Street, E.C.; Messrs. Robarts, Lubbock, & Co., 15, Lombard

Street, E.C.; the London and County Bank, 21, Lombard Street, E.C., and branches; the London and Westminster Bank, 1, St. James's Square, S.W.

— PEASANT PROPRIETORSHIPS.—In a discussion on the "Land Question in 1880," at the Institution of Surveyors on the 10th inst., Mr. C. G. Grey spoke as follows:—"The question of peasant proprietorship in Ireland has been much ventilated of late. To talk of the possibility of the 277,000 tenants holding under 15 acres (referred to by Mr. Watney), living on such an acreage was absurd, and the results would be suicidal. The very small farmers of Ireland could not live on their farms in bad years. He remembered the famine of 1847—the horrors that resulted, and the exertions which all the residents of any position made to alleviate that distress. People were accustomed to regard the famine of 1847 as the only misfortune of the kind which had happened to Ireland; but, looking back into its history, it would be found that there had been a succession of famines in 1816, in 1821, in 1823, in 1827, in 1831, and in 1832."

— VEGETABLE FARMING.—"There was," said Mr. Savill at the discussion above referred to, "some little danger in recommending tenants what to grow. Some five or six months ago Mr. Caird recommended farmers to grow vegetables, and the result had been disastrous to those who had grown Cabbages and other vegetables. Many a man of small capital, who had tried the experiment, had found that it cost him, speaking in round numbers, some £20 an acre to produce his crop of Cabbages, which was not worth when grown £5 an acre—in fact, not worth cutting! The receipts were less than the outlay for the labour incurred in taking to market. No doubt the case was peculiar to the immediate neighbourhood of the metropolis, for in country districts the Cabbages could of course have been utilised for feeding stock."

— SPURIOUS BUTTER.—The *Irish Farmers' Gazette* publishes the following:—"The manufacture of substitutes for and imitations of genuine butter, now carried on so extensively in many sections of the West, is really a national calamity, as well as a fraud upon innocent and unsuspecting consumers. There are seven factories in Chicago alone, each turning out from 2000 to 18,000 lbs. per day of suene or lard butter. Car-loads of this bogus butter are being shipped eastward daily. What must be the effect of such illegitimate transactions upon the sale of western dairy products at our seaboard markets? How unfortunate to American interests, in the great and increasing export trade in butter, that this promising industry should be crowded out by new-fangled articles, having the semblance of butter, but carrying deceit and fraud in their contents. Our eastern dairymen will find an increasing demand for their butter product if bearing upon its face the impress of purity, and if marketed in such form and package as to distinguish it from the vile adulterations now being manufactured in the West. National and State legislation should protect an industry, now yielding one billion pounds of butter annually, from the schemes of unprincipled tradesmen, who would ruin the dairy business of this great nation in order to profit by the manufacture of a miserable mass of bogus stuff, wholly unfit to eat. The American dairy is too large a factor in the prosperity of the nation to be allowed to fall into disrepute through the selfish and unprincipled manipulations of dealers in suene, soapstone, grease, and oleomargarine."

## POULTRY AND PIGEONS

### ARTIFICIAL HATCHING AND REARING.

SEVERAL correspondents have written to ask for advice upon this subject. As we stated in answer to one of them last week, we purpose shortly giving a series of articles upon incubators and their management; we shall afterwards give a detailed account of the various rearing appliances in use. In the meantime, as the needs of some of our readers appear to be pressing, we now give in a condensed form the results of our own experience in these matters. The rules to be observed are as follows:—

Firstly. Let the eggs set be as fresh as possible, certainly not older than a week.



Secondly. During the first ten days keep the atmosphere of the incubator as close and moist as possible, and aim at a temperature of 202°. Take out the egg-drawer night and morning, and turn the eggs; but do not keep the drawer out longer than is necessary for this purpose.

Thirdly. During the remainder of the period of incubation keep the drawer thoroughly ventilated and fairly moist, and aim at a temperature of 104°. The egg-drawer may now be left out for ten minutes once a day to air the eggs, and the eggs turned twice a day as before. If the room be very cold cover the eggs with flannel when being aired. Where one drawer only is used, and the eggs are put in from day to day, those added each day should be put into a small box made to fit inside the drawer of the incubator for twenty-four hours until thoroughly warm, and the temperature should be kept about 103° throughout.

Fourthly. Test the eggs at about the sixth day, and remove the unfertile ones. Test them again a week later, and remove any which may have been passed over before, or which have not duly progressed. If you notice any foul smell in the drawer search for any eggs with moisture exuding and remove them.

Fifthly. As a precaution against damage from carbonic acid gas generated by decomposed eggs keep a small box or saucer full of quicklime in the drawer; cover this with fine wire netting or muslin to prevent the chickens getting into it. If chickens are constantly hatching out, a small cage made of very fine wire netting to fit in part of the drawer may with advantage be used for putting the eggs due to hatch under, and thus preventing the newly hatched chicks from running over the other eggs.

Sixthly. If any eggs due to hatch do not chip, they may be opened at the large end, and the portion of the shell covering the air vesicle removed. If the chick be alive put a drop of warm water on the membrane surrounding it, and this will render the membrane transparent. If there be blood circulating through the veins in this membrane nothing further must be done for some hours; but if there be no blood visible the entire upper part of the shell may be removed, the membrane may be torn off, and the head of the chick released. The chick should be then replaced in the drawer and allowed to get rid of the lower portion of the shell itself. If any blood flows from the ruptured membrane the process of releasing the chick must be postponed. Chicks which chip the shell at the small end of the egg generally require some assistance.

Seventhly. Allow the chicks to remain in the drawer of the incubator until dry, and indeed they may with advantage be left there or put in some equally warm place for twenty-four hours after hatching. If during the first few days of its life a chick shows signs of weakness, a few hours in the incubator will generally work wonders in the way of restoring it. It must be borne in mind that we assume that the hatching drawer is thoroughly ventilated.

Eighthly. After the first twenty-four hours the chicks should be transferred to the artificial mother. If chicks are constantly being hatched two mothers are necessary—one for the very small ones, the other for those over a week old. The best mothers are those in which the outer air is freely admitted, and the chick merely derives its heat from the under surface of the hot tank against which it can put its back. This surface, whether of metal or flannel, should be rigid or nearly so, and be of such a temperature that a thermometer left in actual contact with it for some time will register from 75° to 85°. The height of this surface from the ground should be such that the chicks can easily put their backs against it. A mother which gets filled with a hot vitiated atmosphere is most injurious, as it renders the chicks liable to a chill. A mother with an under surface which the chicks can raise by pressure is also bad, because in the struggle to reach the heat the smaller chicks get trampled on. We prefer a mother with a sloping under surface, as in it the chicks of various sizes can each find a spot to suit their height, and crowding is avoided.

Ninthly. It follows from what we have last said, that any great variations of the atmospheric heat to which the chicks are exposed should be avoided. Do not put the chicks into a greenhouse or room with a very high temperature unless you are prepared to maintain this temperature until they are reared. Indeed, any coddling is most unwise, and it is better to accustom the chicks to the ordinary temperature at once.

Tenthly. Let the chicks have as much exercise as possible, and keep them on dry clay, sand, or ashes, not on a wooden or stone floor. A sod for them to scratch will afford them green food and exercise. Do not confine them indoors except when it is unavoidable.

Eleventhly. Just at first you must pay rather close attention to the youngsters to see that they do not remain out too long and

perish from cold. They will soon get accustomed to run in and out from the mother, and then will be so far independent; but until they do, you must drive them in when they cry through cold, and if necessary keep them shut in for an hour or so several times in the day.

Twelfthly. Feed regularly, and give a little animal food.

Lastly. Pay scrupulous attention to cleanliness. Rake over the clay, &c., with a fine-toothed rake every day, and renew such portions of it as are at all foul when necessary.

With close attention to these rules we know that even highly bred delicate breeds can be hatched and reared artificially with as great a measure of success as under hens. It is contended by some authorities that artificial incubation is only suited to strong hardy birds and not to finely-bred stock. We have come to the conclusion that while the hardier sorts will stand greater variations in temperature during hatching than the highly bred varieties, yet that with treatment such as we have described almost any egg that would hatch under a good sitting hen can be hatched in a good incubator.

### A PLEA FOR POULTRY-KEEPING.

NOTICING the remarks in the *Journal of Horticulture* on page 603 of your last volume alluding to the dislike some gardeners have to keep poultry, I may say there are others who would be glad if allowed the privilege of keeping fowls at their own cottages, but many employers do not allow it to be done on their estates in the country. I am of opinion that it is highly desirable that much more attention should be given to the keeping and rearing of poultry, not only by farmers who should have poultry yards and allow the birds liberty to roam about, but by cottiers in their more contracted spaces or outhouses. Even if the birds were partly wired in it would be a pleasing sight to see them more generally kept in every village, their eggs being so useful and nutritious, and a six or eight-months fowl cooked so splendid for the table.

SUCCESSFUL POULTRY-KEEPING.—A word of encouragement in your *Journal* at the present time might induce many people to begin poultry-keeping. The flocks of sheep have been much reduced in 1880 throughout the country, and now there is disease among cattle in some districts; add to this the prospect of Rabbits being diminished now that farmers are allowed to kill them on the land they occupy. So that every extra new-laid egg produced and every fowl brought to table may help in a small way to mitigate the evil of a scarcity of food; and thus if the flocks and the herds fail we may have, like the Chinese, the domestic fowl to fall back upon.

I will now record an instance of success attending poultry-keeping in 1880, the breed being the White Dorking. On January 1st, 1880, "L. D." was the owner of a cock, two hens, and ten pullets. During the year the number of eggs produced was 1984, a correct register having been kept; six hens were set on twelve eggs each, thus reducing the number to 1912; the value of these at 8s. per hundred would be £7 13s. The chickens produced and reared were forty-two; and eleven couple of these have been killed for table. They were fine young birds, their average weight per couple being 8 lbs. The rest are fine pullets. The market value of the twenty-one couple, at 6s. per couple, would be £6 6s.—total value, eggs and fowls, £13 19s. Against this is the cost of their food as follows:—

	£	s.	d.
Four bushels of Maize .....	1	0	0
One ditto of Barleymeal .....	0	3	6
One ditto of Oats .....	0	3	0
Ten bushels Wheat offal cuttings at 1s. 6d. per bushel .....	0	15	0
Refuse vegetables, &c., from dinner table at 1s. 6d. per week ..	3	18	0
Total for food .....	£5	19	6
Balance, entire profit .....	7	19	6
	£13	19	0

The fowls have the run of a park, and roost in two sheds opposite each other. The backs are formed of walls. The east and west sides are partly wired in, about 1 yard being covered in by slates. The fronts are boarded half way near the wall where their nests are, the rest being wire. Doors open east and west in the yard in front of a cottage where the manager resides. The truth of the above statement can be verified by the manager, also by the owner from whom I obtained the information. I hope many may see their way to make a beginning in so important, useful, and profitable undertaking as poultry keeping and rearing, and that it may become more a national pursuit to the benefit of all engaged in it.

A POULTRY VILLAGE.—I will now refer to an example of poultry-keeping on a large scale—in this case, show poultry. I was on a visit last autumn to the north of England, a few miles from Manchester, where I had the opportunity of going through what I may term a poultry village. The enclosure was two or three acres in extent. The poultry pens were arranged in streets, lanes, alleys, and

cross roads, containing remarkably fine specimens of prize fowls, many of them feathered down to their feet; most of them kept for show purposes. I understood from the attendant they were a source of great profit to the proprietor, buyers sometimes paying as much as £1 for a sitting of eggs for prize fancy sorts. There were many hundreds of different varieties and various ages in pens, and hundreds more not in pens were basking in the sun; it was a grand sight to see them come running when called to their midday meal. I understood they were fed three times a day—at eight, at twelve, and at five in the afternoon. Now what I would like to see or hear of is colonies of poultry, the profitable domestic fowl, not so much for show as for general use scattered through the length and breadth of the land. I believe if more attention were given to the keeping and rearing of poultry by farmers, cottagers, gardeners, and amateurs it would be a wise and beneficial undertaking, and good for the country at large. Our French neighbours are far ahead of the English in this respect, and I have no doubt wonder at our short-

sightedness in buying from them what we might raise ourselves. —T. WALKER, *Gardener*.

["L. D." has a valuable stock. 165 eggs per hen for the year is above the average. Can Mr. Walker give us the monthly returns?]

#### SMALL POULTRY YARDS.

THINKING that my former notes on this subject might create no more than a passing interest, I only made what might be termed a few summary remarks on Mr. Clatworthy's unique poultry yard at page 560 of your last volume; but as it now appears that more minute details would be of service, I gladly comply with the request of "C. J." (page 604), and send a ground plan of the yard in question. At the same time I may say that my previous figures as to area and extraordinary number of fowls kept therein were quite correct. "C. J." cannot imagine what use the small coop-like runs at the top of the yard are good for,

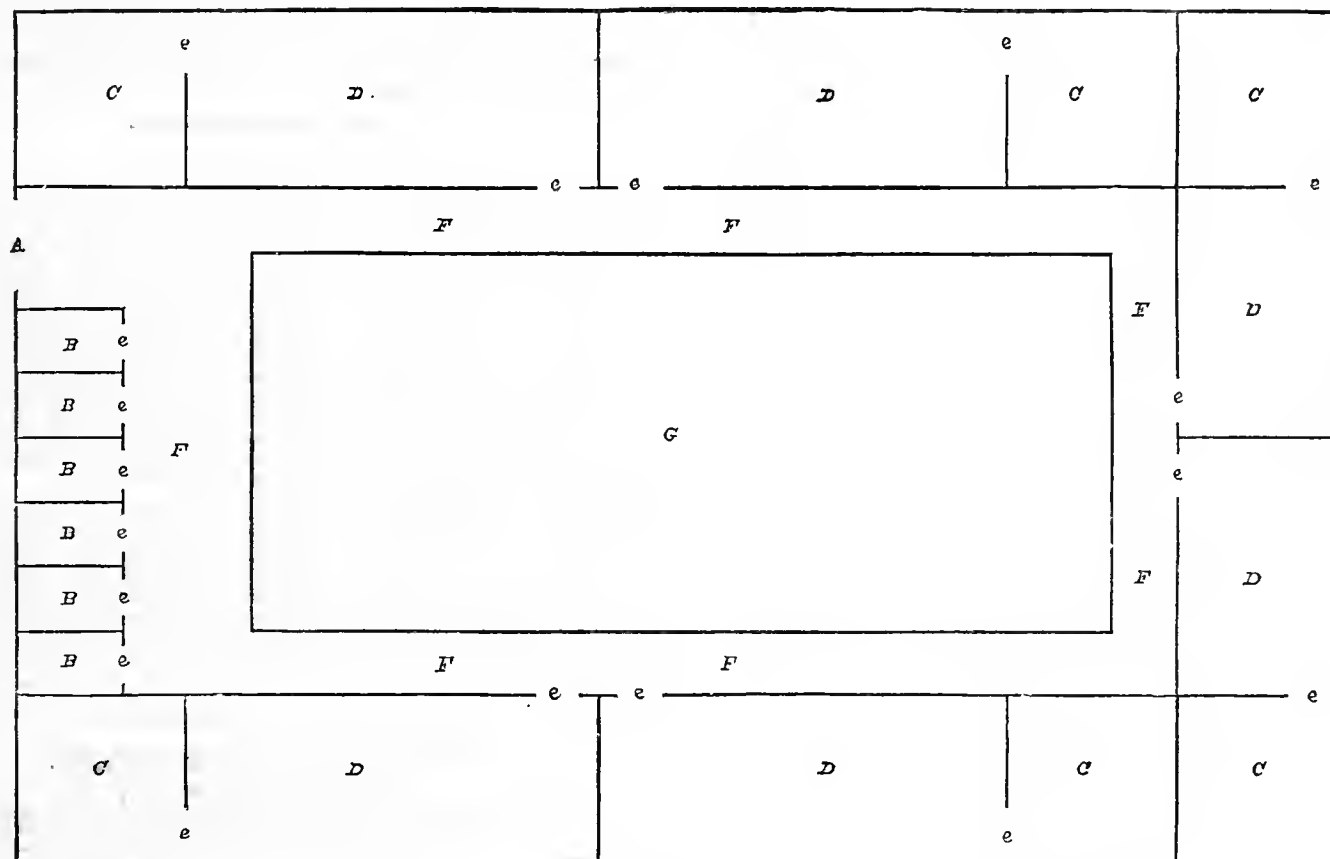


Fig. 19.

A, Entrance; B, Small coop runs; C, Roosting places; D, Runs; E, Doors; F, Walk; G, Grass. Scale, one-eighth of an inch to a foot.

but if he saw them he would soon perceive their value. We are having some of the same kind constructed now, and fifty of them would not be too many for us. It will be seen there are six small coop runs on the ground floor, and there are other six of the same size and shape above them forming the second storey, and making twelve. The whole of the yard all round is roofed over. The fronts of the roosting places are of boards, and the runs have boards in front next the ground and wire above this until it meets the bottom of the span roof. The highest part of the roof is from 5 feet to 6 feet from the ground. The fronts of the top coops take the form of doors, with a square hole in the centre of each covered with wire, and a shutter behind this to close when necessary.—M. M.

#### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 60.)

THE greater degree of facility with which points which have been a long time in existence are reproduced may be accounted for as follows:—They have through length of time become characteristic of the variety as distinct from the several strains of which the variety is made up, and as a general rule the various strains have become so mutually crossed and recrossed that the whole variety is, in fact, only one family. Every attempt to introduce fresh blood is thus counteracted as to its ill effects by the fact that the new blood is more or less remotely connected with the strain into which it is introduced.

Again, even if there be no actual relationship between the two

strains, each bird has become so prepotent as to the points which have been established for a number of years that there is a prepotency in both parents as to the same points, and they are thus much more likely to be reproduced than if one of the parents were loosely bred as to the points in question.

As an illustration of our statement that in-breeding is largely resorted to by fanciers generally, and is not necessarily injurious, we may cite the following lines from the letter of a breeder of Turbits published recently in the pages of a contemporary:—"I have at this moment upwards of fifty Pigeons that are all bred from two pairs of birds that I bought ten years ago. They have never been crossed; they are perfectly healthy; are, many of them, larger and better in their fancy points than the birds they were bred from, one of which is still alive. They have been carefully selected for size and fancy points, entirely regardless of relationship."

It must be borne in mind that we are only writing for fanciers; not for those who keep poultry either with a view to killing for table purposes or to the production of eggs. We do not say that even for these purposes in-breeding may not sometimes be desirable; but there is no doubt that, as a general rule, first crosses are more advantageous. The fancier, however, does not regard table or laying qualities as of primary importance. He seeks to attain perfection in certain fancy points, and the more difficult the task of attaining perfection the more attractive is the pursuit of it. Even though the variety which he takes up have certain known characteristics which are easily reproduced, the true fancier is not satisfied with merely reproducing these, but seeks to add new

beauties and new perfections to his favourites. Writing for him we must undoubtedly answer the question which we first propounded to our readers in the affirmative, and declare that the adoption of in-breeding is essential to the success of the fancier. In this view we are supported, as we have always stated, by the recorded results of the methods of breeding adopted in regard to cattle, sheep, and dogs, by what we know of the methods adopted by successful breeders of poultry and Pigeons, and by our own experience in this matter extending over a period of nearly twenty years.

(To be continued.)

### EGGS IN WINTER.

EVERY farmer who knows anything knows that it pays to have eggs to sell in winter, but not one farmer in twenty takes the slightest pains to persuade his hens to lay in cold weather. Many farmers who use common sense in caring for their horses, cows, sheep, and swine, exhibit a wonderful amount of ignorance and stupidity when it comes to managing poultry, and the flocks of twenty or thirty hens, instead of being a source of revenue, barely pay their way in summer and eat their heads off in winter. Whose fault is it? Not the hens' surely. A hen cannot run an egg machine without a supply of raw material to work on. What would these farmers think of a man who sheltered his cow in a rail pen, fed her on straw, let her go without water, and then growled because she did not produce as much milk as when on Clover pasture in June?

A medium-sized egg contains 127 grains of albumen, 94 grains of fat, 13 grains of ash, and 666 grains of water. To those who have never studied these things the amount of water seems large, but it is less than in beef, while the amount of fat and of muscle-forming material is greater than in fat beef. Now does anybody imagine that hens can manufacture such a highly nutritious article of food unless they are provided with plenty of raw material in the shape of egg-making food, and a comfortable house to live in?

It is just as easy to have eggs to sell in winter as in summer, and a great deal more profitable. Don't tell me that it is not natural for hens to lay in winter. It is just as natural for hens to lay in winter as it is for cows to give milk in winter. Give your fowls comfortable houses, and with proper food and care they will lay, because they cannot help themselves.

No live stock on the farm will pay as well in winter as a flock of hens properly managed. Farmers, look to this; turn over a new leaf with the new year, and give your fowls the same care that you give to other stock, and you will never have cause to complain that hens eat more during the winter than all the eggs they lay in a year would pay for.—FANNY FIELD (in *Prairie Farmer*.)

### TOY PIGEONS—HELMETS AND SPOTS.

THESE two varieties are nearly related; we place them before many more popular breeds because they are old-established, and descriptions of them are to be found in the older Pigeon books. The breeding of Toy Pigeons has certainly of late years been carried on in a more scientific manner than formerly, and consequently fanciers are attracted to varieties with many fancy points. Helmets and Spots have few, and have consequently gone out of favour. The "Any other variety" classes, too, at shows are now everywhere overfilled, and judges in their perplexity look to striking novelty and pass over old-fashioned favourites. For a real fancier who loves his birds for their beauty and interesting ways, apart from their exhibition value, there are few breeds of Pigeons which we think more suitable than these. They are agile and light on the wing, good breeders and mothers, and in all Pigeons the contrast between finely defined white and coloured feathers is very beautiful. Our old friend "The Dove-cote and Aviary" says of the Helmet—"The Helmet is about the size of a Nun, or somewhat bigger. The head, tail, and flight feathers of the wings are always of one colour, as black, red, yellow, and I believe there are some blue, and all the rest of the body white, so that the chief difference between them and a Nun is that they have no hood on the head and are commonly gravel-cyed." "The Treatise" says, "They are called Helmets from their heads being covered with a plumage which is distinct in colour from their body, and appears somewhat like a helmet to cover the head."

The Helmets which we have ourselves seen, and which are now occasionally shown, have the coloured head and tail but not the flights; indeed, we do not believe that there are now any to be procured with coloured flights. The head marking must of course

be very "clean-cut," like a Bald Tumbler, though the reverse as to colour. This marking unfortunately leaves some scope for "trimming," and Helmets should not be bought from chance vendors. We once had a Yellow hen which the late Mr. B. P. Brent, a true fancier and a great judge of Pigeons, procured for us from Germany. She was a Crested Helmet—i.e., her head like a Nun, but with white flights, and a very pretty bird. Spots, instead of a coloured head, have a coloured spot over their beaks, coloured tails, and the rest of their plumage white. They are scarcely so pretty as Helmets, but increase the variety of a flight.—C.

**DORCHESTER SHOW.**—Owing to the great snowstorm which prevailed throughout the country last week, our reporter was quite unable to reach Dorchester Show in time to furnish us with a report. Much the same birds will no doubt put in an appearance at Yeovil this week, and we hope to be able to give our readers a full report of the Show there. We fear the storm will have proved disastrous to many birds through exposure to cold, occasioned by the delays in the railway service. We would counsel owners not to send their favourites on long journeys while this severe weather lasts.

### OUR LETTER BOX.

**Pigeon Unhealthy** (*H. A., Manchester*).—Your Pigeon is evidently suffering from a bad form of canker. Cut or scrape away the diseased parts, wash well with Condy's Red Fluid, and touch with lunar caustic. If the inside of the mouth be much affected, a small indiarubber ring should be put on the lower mandible of the beak to keep the parts from touching each other. In that case the bird will have to be fed by hand until the wounds heal, and the ring can be removed. Books such as you want are the "Practical Pigeon Keeper," price 3s. 6d., and the "Book of Pigeons," price 31s. 6d., both published by Cassell, Peter, Galpin, & Co. The latter work is now being published in shilling parts. The Long-faced show Antwerps are the flying birds, but the Short-faced have been known to be good homers occasionally. Homing Pigeons are bred exclusively for flying, not for show purposes, and have been produced by crossing several varieties. The term you refer to is merely local, which carries its own explanation with it; there is no such variety.

**Turkeys not Thriving** (*J. F. Brambles*).—Your Turkeys are suffering from indigestion. Have they plenty of gravel or lime rubbish? If not, supply it at once. A good dose of castor oil followed by soft food moistened with boiled milk, or having a small quantity of powdered chalk mixed through it, will be the best treatment to adopt. If the food has been long in the crop you must soften it with plenty of warm water; have the bird held up by the legs, and gently press the food out through the gullet. This requires to be done rapidly, and care must be taken that the bird is not suffocated by continuing the process for too long a time at once. Afterwards feed for some time only upon soft food.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In snn.	On grass.		
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.		In.	
Jan.											
Sun. 16	29.810	17.8	17.0	N.W.	35.0	27.4	14.2	47.0	11.2	—	
Mon. 17	29.818	15.4	15.3	S.	34.6	29.9	11.8	34.6	2.3	—	
Tues. 18	29.248	30.4	30.4	S.E.	34.3	30.4	13.7	31.3	8.9	1.083	
Wed. 19	29.200	26.8	26.8	N.E.	34.0	29.4	22.2	30.0	20.0 <sup>p</sup>	0.188	
Thurs. 20	29.804	20.7	20.5	N.W.	34.1	31.8	18.5	77.2	17.0 <sup>p</sup>	—	
Friday 21	30.188	22.1	21.8	N.E.	33.9	30.4	15.7	55.0	0.6	—	
Satur. 22	30.235	18.5	18.0	N.	33.8	32.2	15.2	34.6	7.6	—	
Means.	29.758	21.7	21.3		34.2	30.2	15.9	44.2	9.7	1.271	

### REMARKS.

16th.—Bright fine morning, cloudy afternoon, clear in evening; intense cold all day.  
 17th.—Misty and bitterly cold; slight sunshine in middle of day.  
 18th.—Very boisterous, with piercing cold wind and drifting snow all day. Up to 1 P.M. snow 3 inches in depth, 8 P.M. 7½ inches, 9 P.M. 8½ inches; wind decreasing after 5 P.M.  
 19th.—Snow commenced again at 9 A.M., and continued most of the day; high wind in evening.  
 20th.—Bitterly cold but very fine, with much bright sunshine; fog in evening.  
 21st.—Bright, clear, and very cold.  
 22nd.—Few flakes of snow at 9 A.M.; frosty and overcast great part of the day; bright at sunset.

The week has been equally remarkable for low temperature and for deep snow. The air temperature has not been quite as low as in 1860 and in 1867 (6.7° in each case), but the exposed thermometers have been very low. On Monday, before the great snow, the minimum thermometer lying on the snow of the 12th fell to 2.3°; then on the 19th and 20th it was buried in the deep snow, but being dug out and, with several others, laid upon the snow it fell on the morning of the 21st very nearly to zero. The remarkable effect of a covering of snow in keeping the earth warm is shown by the earth at a depth of 1 foot remaining considerably above freezing point, although last year—with much higher air temperatures but without snow—it stood at freezing point for more than a week.—G. J. SYMONS.





3rd	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
4th	F	
5th	S	
6th	SUN	5TH SUNDAY AFTER EPIPHANY.
7th	M	[11 A.M.; Annual General Meeting at 3 P.M.]
8th	TU	Royal Horticultural Society's Fruit and Floral Committees at
9th	W	Society of Arts at 8 P.M.

## EARLY PEAS.

**H**AVE you picked any Peas yet?" is a question often asked early in the season among rival gardeners, more especially those in charge of comparatively small gardens. Few gardeners like to be much behind their neighbours with their vegetable crops, and friendly rivalry no doubt has done much to stimulate growers to extra exertions in the laudable attempt to excel with all kinds of vegetables, and Peas in particular. In this district it is not the prospect of being surpassed by neighbouring gardeners that incites to extra exertions, but the certainty that if we do not pick early we shall be excelled by the growers for markets, and that too in the open fields. As Peas at all times, and especially early and late dishes, were much appreciated here, it has been my aim not only to have good early pickings from boxes and frames, but also from rows on the south border, before many of the market growers had commenced picking. According to promise I will briefly relate my practice, which, if not novel, has at all events been satisfactory to my employer, and I may say profitable to myself. According to my ideas it is a mistake to grow a few small dishes far ahead of the ordinary outside supply. My object has been to secure a moderate and continuous supply with the aid of boxes, frames, and sheltered positions for at least three weeks prior to the ordinary early crops, and the same results may easily be attained in many other gardens.

With very early Peas in pots I have never done much good, indeed we could not afford the room for a sufficient number to be grown; nor do Peas force readily. At one time our earliest Peas were grown in ordinary three-light frames placed on a slight hotbed, sowing the seed early in January. I may remark, that although we transplant a great number of Peas, they really crop most heavily if sown where they are to remain. Very little trouble in the way of watering and ventilating was taken with those in frames, no attempt being made to force the crop, and useful pickings were the result. Last season the frames were wanted for other vegetables, and our earliest supply was obtained from a sowing made in some old verandah flower boxes. These are about 9 inches wide and 10 inches deep; they were lightly drained and filled with a mixture of chopped turf and soil from an old Cucumber bed. Laxton's Minimum, kindly sent for trial by the raiser, was the variety grown. The seed was sown early in February, and the boxes were placed in a Peach house that was being slowly forced. When the young plants were well through the soil, and before becoming drawn, they were transferred to a cold frame, where they remained till early in April, when they were placed outside the

Peach house close under the front, and protected with mats when necessary. The Peas were very lightly staked to prevent their being blown about; and water was supplied freely, varying with liquid manure when the pods were forming. From these our earliest Peas were gathered, and I was informed that they proved very delicious. Minimum in habit is remarkably dwarf and branching, and should be sown thinly; it is very prolific, and the comparatively small pots yield an astonishing number of sweet wrinkled Peas. I have no doubt it would succeed admirably in 8-inch pots, being treated similarly to those in boxes. Peas when established in pots require liberal supplies of water at the roots, and that is why boxes are preferable; but where pits or frames are available it will be found most profitable to employ them in preference to either pots or boxes.

To follow those grown in boxes we grew a crop in an old unglazed pit, protecting with mats. The variety preferred for this sowing is Laxton's Unique, a dwarf form of William I.; but this, unfortunately, has not found favour with growers generally, consequently it is eliminated from most seed catalogues. I save my own seed, and those who intend growing Peas in frames and cannot procure Unique must substitute some other dwarf early variety. For the future we shall sow the seed in boxes, placing these in a cold frame if sown in January, or in a gentle heat if sown during February. Before the plants become drawn they are in the latter case transferred to a cold house or frame, transplanting into pits towards the end of March. A slight hotbed sufficient to assist the establishment of the plants is previously formed; over this a layer of manure and soil being spread in equal parts, and then a depth of about 9 inches of soil composed of old potting soil and loam from old Cucumber and Melon beds. The lines of Peas extending north and south are placed about 18 inches apart, or three to a light, and between these are planted single rows of spring-sown Early Paris Market Cabbage Lettuce, early Radishes being sown on each side of these, all eventually proving useful. The Peas are staked when planted out (Unique grows about 18 inches in height); they are protected from frosts and heavy cold rains too, as much as possible with mats; water is given at any time when the soil is dry, liquid manure being freely supplied when the pods are forming.

To maintain the supply another batch of plants was raised at the same time as the foregoing of Unique, Minimum, and William I.; and these when well hardened off were, on the first favourable opportunity, planted out, the two former at the base of a west wall, and the latter near a fence facing westward—such sites here proving the warmest. All were staked, and protected with branches of evergreens when necessary, and copious supplies of liquid manure were also given as the crop advanced. Last season in this manner we secured good dishes fully a fortnight in advance of those Peas grown on the south border clear of, but sheltered by, a wall.

The last mentioned is what may be termed our principal early supply, which is obtained by sowing direct, or still earlier if a lighter crop, by transplanting from frames. In our case the latter is resorted to should we be unable early in February to work the soil into good condition. In any case I recommend transplanting where no other early Peas are grown, as a week at the least is gained thereby. Again, if early dishes rather than heavy crops are desired it is a mistake to sow or plant on a very rich loose soil, as under these conditions the

Peas are apt to grow very vigorously, and are later accordingly. I account for the earliness of the field crops from the fact of the seed being sown on comparatively poor soil; and from exposure to the sun and air the plants do not make much superfluous growth. To succeed those transplanted it is necessary to sow more seed of the same varieties either on a warm border or in the open, as early as possible in February; and if the earliest are sown direct another sowing should be made when these are pushing through the soil. As I have before stated, my favourite varieties for the principal early crops are Harbinger and William I., and if either of these are unobtainable, or a third variety be tried, then I recommend Suttons' Emerald Gem.

Some gardeners consider sowing and transplanting Peas a troublesome process, but I venture to assert the amount of trouble necessarily taken is more apparent than real; and that it is less trouble and often more profitable to raise the plants under glass and transplant them than to sow in the border. I am alluding to sowings made early in the year, late autumn sowing being in my opinion often a waste of labour and seed. If it were really necessary to sow in turves, troughs, and even pots, then the case might be slightly different; but after having tried all these methods I have arrived at the conclusion that better results are obtained by sowing in ordinary bedding Pelargonium boxes; and also that it is preferable to sow the seed early in January, and place the boxes in a cold frame rather than in heat later on, followed by the requisite hardening off of the plants. The boxes should have a layer of clean potsherds over the bottom, principally to prevent the primary roots from clinging to the wood, and thereby being much damaged when transplanted. The soil employed should be light and fine; we use fully one-half sifted leaf soil, and from this the roots separate freely, and can be laid-in to their full length. This last is not generally the case with plants raised in pots or turves, and these I find do not so readily establish themselves in the surrounding soil, and owing to the diversion of tap roots do not root so deeply.

When we transplant our Peas, which is usually on the first favourable opportunity in March, a line is drawn, and on each side, and about 2 inches clear, a deep narrow trench is taken out with a spade, as if for laying Box; the plants are shaken out, laid-in singly about 2 inches apart, and the soil carefully worked about the roots. By these simple means rows of strong plants are formed, which are generally too old for the birds to eat, and will grow away without any marked check. They are at once earthed up and staked, and with well-hardened plants no other protection is necessary. If second early or main crop varieties are required early for any particular purpose they can, as a rule, only be had by sowing under glass and transplanting. Last season Webb's Triumph, a main crop variety, so treated was fit for use when wanted—viz., June 29th.—W. IGGULDEN.

#### ROSES ON THEIR OWN ROOTS AND OTHERWISE.

In his review of the "Rosarians' Year Book for 1881" "J. A. W.," on page 49, deservedly draws attention to the able articles of Mr. George Baker. I cordially endorse the high opinion "J. A. W." forms of them. They are certainly most ably written; and as Mr. Baker is known to be a successful grower, a careful observer, as well as a concise writer on matters pertaining to the Rose, his articles may be advantageously read by all who attempt the cultivation of the Rose for pleasure or profit.

With respect to the cultivation of Roses on their own roots, which the reviewer thinks a fit subject for the Committee of the National Rose Society to take up so as to make a list of those varieties likely to do and thrive without the help of a foster-parent, I consider premature. The attempt would, at the present time at least, end in failure or prove very misleading, for the simple reason that the system of growing Roses in quantity on their own roots, especially for exhibition purposes, must as yet be quite in its infancy.

That some Roses do as well on their own roots as on any kind of stock I readily admit, though I should hesitate to give a list of such. *Maréchal Niel* I am certain will not do well on its own roots, and the stocks most congenial to it are the *Briar* and the *De la Grifferaie*. This Rose strikes root most readily, but it is very disappointing in its growth afterwards.

To produce Roses in quantity on their own roots is a very slow

process, consequently it is a question if it will ever become general enough to annihilate the foster-parents of the Rose. Some growers for sale are able to supply plants on their own roots, but I question if they do not send out more thousands on stocks than dozens that have been raised from cuttings. That there are advantages attending this mode of culture in some instances no one can deny, only in the present age of hurry and advancement most growers are anxious for the results of their labour to make its appearance in a much shorter time than can be attained by the slow and tedious process in question.

It is well known that most rosarians have a fancy for some particular stock on which they find their plants do best and make the most satisfactory returns. A great change has been brought about in the number and choice of Rose stocks during the last thirty years, which has most certainly assisted in giving an extraordinary impetus to Rose-growing. Roses judiciously selected on a stock known to be suitable for the soil and situation they are intended to be planted in, and fairly treated, will assuredly make a much more gratifying return than they could possibly do when a haphazard selection is made, and when worked on a stock only suitable for soil the very opposite to that in which they are intended to be planted. If beginners in Rose-growing were only authoritatively guided by any one of our well-known Rose-growers, the results would not only astonish them but afford them much pleasure. It would be altogether wrong to unduly magnify the results likely to accrue from a proper selection of stocks in very indifferent soil, but that good ordinary Rose blooms fit either for garden or decorative purposes would be obtained I unhesitatingly assert.—OXONIAN.

#### THE SEED ORDER.

(Continued from page 66.)

As the Cauliflower season lasts some seven months, and as most people like Cauliflowers, this must be considered one of the principal vegetables. Success here perhaps depends more on management than on the selection of varieties, because it is scarcely possible to obtain seed of a bad variety from a respectable firm now when there are so many good ones in the market. I depend still for the first main crop on the true stock of *Early London*, for although the newer early and reputed early varieties are not neglected, I have not personally proved them sufficiently to depend exclusively on them. I have half an ounce of this, one ounce of *Walcheren*, and two packets of *Veitch's Autumn Giant*. The sowing for the first spring crop takes place during the first week in September, which is later than is advised in any of the calendars I have read. It is made in a warm position out of doors, and as soon as the plants have formed the first rough leaf they are carefully pricked out about 4 inches apart in a frame raised a little above the ground level by means of some rather dry litter, where they remain with as little protection as is necessary till February, then to be transplanted about 9 inches apart in a warm corner, with a plank running along each side of the bed, on which shutters or lights can rest when required. Later on three-fourths of them are carefully lifted with balls of earth, and planted in the open ground, leaving the remainder, which are then 18 inches apart, to be still protected when necessary. The second sowing is made early in February between rows of Potatoes in a warm frame. This sowing consists of the three main varieties—viz., *Early London*, *Walcheren*, and *Autumn Giant*. Another sowing of the same varieties is made early in March where the plants can be protected with glass, and a third and fourth outside during the same month. Two or three sowings consisting exclusively of *Walcheren* are made during April and the early part of May, and the final sowing about the middle of May, when *Early London* is used as well as *Walcheren*.

Of Celery I grow three varieties. *Major Clarke's Red* is the best in quality, but it is neither the earliest nor the hardiest. *Sandringham Dwarf White* is fit to use first, and for standing through the winter I use *Williams' Matchless Red*. The old large-rooted *Chicory* is preferred to the *Whitloof* variety, and the latter is discarded. *Chervil* is in almost daily request and must not be neglected. It is hardy in most positions, and about two sowings will suffice. Of Cress the plain or common is quite as good for common use as the more expensive *Extra Curled* variety. *Ayton Castle* and *Musselburgh Leeks* are used, and one ounce of each is sufficient.

Of Cucumbers I save my own seed, but those who require a variety to depend on during winter may select from *Masters' Prolific*, *Rollisson's Telegraph*, and *Dickson's Favourite*. Ridge Cucumbers and Gherkins are not grown, the small fruits from those grown in houses and pits answering very well for pickling purposes.

**Lettuce and Endive.** Early Paris Market Lettuce is valuable, and if seed is sown early in February in a warm dung frame, and the young plants transplanted carefully to another frame as soon as they are large enough, will often come in before the autumn-sown crop of Cos Lettuces, but it must not be allowed to remain in the seed bed a day too long. The only other Cabbage Lettuce I use generally is Tom Thumb, which is very useful both for autumn and early spring use. Alexandra White Cos is good for summer weather, but the Black-seeded Bath Cos is the most important of all, it being indispensable in spring, autumn, and winter, and when we happen to have a bad summer, it is also then one of the best to depend on. Two ounces of the last-named and a less quantity of each of the others are sufficient for my purpose. The Improved Round-leaved Batavian Endive is a great favourite and is used largely. One sowing is made about midsummer, and another three weeks later. The Green Curled variety is also sown at the same times.

Of Melons the Cashmere is preferred, but it is a difficult one to grow, cannot be had very early, and will not do in a frame, therefore I should not recommend novices to try it. Eastnor Castle is one of the easiest Melons to grow, and although inferior to the Cashmere in quality, it is better than most other varieties, and would satisfy those who have not tasted a well-grown fruit of Cashmere.

Of Onions I grow White Spanish for the earliest, Danvers Yellow for the main crop, Silverskin for pickling, and Giant Rocca for autumn sowing. I have 1 lb. of seed of Danvers Yellow, and 4 ozs. each of the others.

Of Parsley I grow the Fern-leaved and anybody's splendid Curled, and of Parsnips a good stock of Hollow-crowned, of which I require 1 lb. of seed. Radishes are not much in request, but a few of Wood's Early Frame are used in the spring for sowing on dung beds between Carrots, &c. Salsafy is much used by some cooks during winter, and is so easy to grow that it is always advisable to have it in all large establishments. The last week in April is soon enough to sow it, and 2 ozs. is sufficient.

Of Savoys, the Dwarf Green Curled is the principal, and Drum-head makes a good succession. These vegetables are seldom planted out sufficiently early. They are too late; they follow any but the very early Potatoes, and where ground cannot be had soon enough for those named it would be better to use some variety which comes in quicker.

Spinach is an all-the-year-round vegetable, and therefore must not be neglected. I use one quart of the Round or Summer Spinach, and double that quantity of the Prickly or Winter variety. The last-named has done better with me this season than ever it did before, and I attribute the success to the large quantity of burned clay which was worked into the ground. Tomatoes, too, are in daily request all the year, and I find none so good as the old Orangefield Dwarf for my purpose. I consider it, too, the best flavoured of the Tomatoes I have tasted, and I fancy I ought to be a tolerably good judge, for I prefer Tomatoes to Peaches. This variety can scarcely be obtained true to name now from the seed shops. In the Tomato trial at Chiswick a few years ago I saw several named Orangefield Dwarf, but only one or two plants of the true sort. I keep my stock by cutting.

Early White Dutch Turnip is used for the earliest, Veitch's Red Globe for the main crop, Chirk Castle and Orange Jelly for winter.—WM. TAYLOR.

I HAVE been unconsciously following Mr. Taylor's plan in ordering seeds; and I am proud that I have followed so good a man, even in such a small matter, as I have a high opinion of him, although I only know him by his writings in the Journal. After examining the seed catalogue, pencil or pen in hand, several novelties are generally included. Seeds were so expensive last year that novelties had to be excluded. I next ascertain the cost of the seeds, and if I find the novelties have increased the total price too much, they are then reduced in number. These, with fresh sorts, are carefully tried by the side of well-known varieties, all their points are noted, and a private mark is placed against each in the seed catalogue and my diary. Therefore my notes during the year leave me scarcely anything to do but mark the quantities required. One of my employers thought he could purchase seeds himself at less expense, so he ordered a collection. At the end of the summer I had several of the packets left untouched; some of them were kept two or three years, they were then thrown away. Of other sorts that we had a greater demand for there were not nearly enough. The bill for these extra seeds during the year was almost as much as the collection cost. I have no doubt that collections are very useful for people that do not study gardening, and small gardeners who have not confidence to order seeds in the usual manner, from a lack of knowledge of the

different varieties that are now so numerous, and to many people bewildering.—J. L.

#### CANDOLLEA CUNEIFORMIS.

A LARGE bushy specimen, 4 feet high and a yard in diameter, of this rare old plant is now flowering in a cool greenhouse in the Botanical Gardens of Trinity College, Dublin. In foliage and flower it so nearly resembles an Azalea that many visitors are deceived into believing it to be one. Our plant is in bloom for six months out of the twelve. Cuttings root in a cold frame, but the process is a very slow one. Some inserted last May have only just emitted roots, and I am half afraid that the severe weather (22° below freezing) has been too much for them, the frame being only protected with a mat. Some, however, appear to be alive, and cuttings of *Hypericum chinense* (or *H. monogynum*), and *Calceolaria fuchsifolia* × *Pavoni*, however, look



Fig. 20.—*Candollea cuneiformis*.

none the worse for the low temperature above named. This *Candollea* will grow well in a cold greenhouse from which frost is excluded, and would doubtless be hardy in the Scilly Isles and in any other peculiarly sheltered parts of Britain. The leaves are of a shining light green colour; the flowers are bright yellow. Both flowers and foliage are represented of the natural size in the accompanying illustration. The plant is a near ally of the *Hibbertias*, and was introduced to this country from New Holland rather more than half a century ago.—DUBLINENSIS.

#### NATIONAL ROSE SOCIETY.

AMID the gloom and chilly surroundings of this most inclement season, it is cheering indeed for anyone who has a love for Roses to think of the condition and the prospects of the National Rose Society. These indeed may be said in a double sense of the word to be truly "rosy;" indeed, so far as my experience of Rose societies goes, I never knew one before exhibit such vitality or have such fair prospects as this Society. But someone may say, "This condition is what one would expect and to what a national society, be it worthy of the name, should as a matter of course attain." True indeed, but it is not always that a name commands success. There are, however, certain conditions which if a society fulfils it may command success, and I think the National Rose Society does fulfil these.

First, justice. It is just in its dealings to all men with whom it comes in contact. Provincial Rose societies are met with liberality and encouraged in every way. Exhibitors great and small are treated in the fairest way. There is no favour shown to great growers, whilst small exhibitors are treated with disdain. The claims of all are allowed; and the suburban grower, who under great difficulties manages to grow a few Roses, knows that his six will have as good a chance of winning a prize as the big nurseryman's seventy-two.

2. While it is comprehensive in its character it also is ubiquitous



—goes everywhere : in fact the motto of the famous regiment of the Royal Artillery, "*Ubique*," may be applied to it. In north and south, east and west, either now or in future years, will the National Rose Society hold its shows. This year, for example, there are to be three great shows—viz., one in the south and two in the north. At Sydenham, under the glass of that famous Palace which has seen so many noble exhibitions, the southern men will come to show how Exeter, Colchester, Cheshunt, Hereford, Canterbury, Slough, and a hundred other places can grow Roses which will be the pride of all who are fortunate to see them ; while at Sheffield, that dingy smoke-enveloped town, the brave men of the north will prove how they can battle with difficulties. Manchester, too, determined not to be left out in cold for one year even, have invited us again to hold a show at their famous Botanic Gardens ; and we have indeed good reason for believing, that whatever town may claim our provincial shows in future years, Manchester will always invite us. Next year, that lovely city once the most fashionable inland watering place in this fair land, and now as ever the most beautiful city—Bath, will once more see a grand Rose show held in her gardens ; and year after year we doubt not other towns will invite us, so that we shall prove indeed our claim to our motto, "*Ubique*."

3. But all this success would be marred if our finances were in bad order, if we were not paying our way, or had to face the coming season with dread and foreboding. But in this respect fortunately we are in a most excellent position. We have a good balance in hand, and if we have only a good Rose season, fine weather, a genial spring, and a hot summer we shall hope to add to our balances.

4. Then again, we are a united body. When the Committee meet a smile is on every face, a warm hand-shake is exchanged on all sides, and each one settles down to work with but one wish in his heart—to do his best for the Society, to encourage Rose-growers, to animate the minds of all with an eager desire to improve the flower we love so dearly.

"*Floreat Rosa*" we say, and then do our best to make it flourish ; and I am sure the Rose Journal, or rather the Editor thereof, will re-echo the cry, and do all in his power, as of old, for many years, by giving good reports of the various shows, to encourage Rose-growing ; and I do not think there are many subscribers to this estimable weekly who will not wish us well.

Go where I will I hear of fresh men who are heartily going-in for Rose-growing. But no county seems to be advancing with greater strides than Sussex. I once held the humble position of junior curate at a large town in Sussex, and when there no one grew Roses except as garden flowers. Now I know of four large growers and exhibitors, one of whom is on the Committee of the National, and only the other day I heard of a gentleman who lives in a large park who is making it the "business of his life to grow Roses fit for exhibition."

Although no longer able to carry the long green boxes into the tented field, my love for the Rose is not diminished, nor ever will it be. As a member of the Committee, as a judge it may be, at all events as (not a critic, that is too harsh a word) a reporter of the varied glories of our shows, I will ever do my best to promote the welfare of the Rose.—WYLD SAVAGE.

As in your notice of the last meeting of the General Committee of the National Rose Society it was stated that I had been deputed to visit Sheffield and confer with the authorities there as to the arrangements for the forthcoming Exhibition, I am sure that many of our members will be glad to hear how matters are progressing. I have never for a long while travelled on so cold and bitter a day ; three times during the journey we cleared the windows, and three times they were again completely covered with frost. But the warmth of one's reception made up for any of the inconveniences of the journey, and a bill of fare placed before me which would satisfy the most voracious lover of the Rose or the most ambitious exhibitor, for in addition to the hundred guineas which they contribute to the schedule they have made up a special fund of nearly £130. A considerable portion of this is for prizes to local exhibitors—that is, for those residing within thirty miles of the Town Hall, Sheffield, and for bouquets of Roses ; but I may specify that besides these the Mayor of Sheffield presents a ten-guinea cup in the nurserymen's class of seventy-two, and the Master Cutler another cup of the same value in the amateurs' class of forty-eight. The President of the Botanic Society gives another ten-guinea cup for the best collection of Roses in pots, the town of Sheffield two five-guinea cups and a prize of £5 for the best seedling Rose, to be called the "Rose of Sheffield," so that altogether a schedule that has never been equalled at any provincial Rose show will be set before exhibitors ; the total value of the prizes offered being nearly £270.

I may also add that in every way it will be the desire of the Committee of the Botanic Society to consult the comfort and pleasure of the exhibitors. Arrangements will be made whereby exhibitors and their assistants can procure refreshments at moderate charges

from an early hour in the morning. Vans will be in readiness to convey the boxes from the stations, and the Judges will be invited to a dinner to be held in the evening. As already announced, Canon Hole, the President of the Society, will deliver a lecture on Roses (to be followed by discussion) in the gardens at four o'clock, so that everything has been done to endeavour to make the meeting a success. Thus the opinion of those who so strenuously desired that Sheffield should be the place of rendezvous has been abundantly justified by the preparations that have been made to receive the Society. Two things will be wanted to achieve that success—Roses to show, and a fine day to see them ; both of these are beyond our management, but let us hope we may have them.—D., Deal.

## THE EFFECTS OF ELECTRICITY ON VEGETATION.

(Continued from page 46.)

By the staining process it is shown that the fluid contained in the roots is devoid of oxygen in its free state, but that it acquires this condition at the collar where it becomes exposed to the atmosphere. Now the chief materials absorbed from the atmosphere are oxygen, carbonic acid, and water, and possibly small portions of nitrogen ; but these elements in entering pursue a totally different course to that absorbed by the roots, for, instead of taking an upward course, they proceed directly across towards the pith inwards, as may be proved by staining during active growth. Fill a wineglass with small shot, and it will still hold a considerable quantity of water in addition ; the shot, not fitting together but leaving angular cavities between them, provide openings which in the cellular tissues of plants are termed "intercellular spaces," and are thus organised as a provision for admitting the nutrient sap to all other parts of the system where the upflowing sap does not appear to reach. But this is not all. These spaces are in communication with the epidermal cells and hairs, by which they are fed from the external atmosphere. Let a small piece of any fine root or rootlet containing hairs upon the surface, together with a fragment of any hairy leaf or stem, be placed in a drop of water upon a glass slip, and then be covered with thin glass and submitted to the microscope. Next, with a pointed matchstick dipped in the magenta dye touch the upper edge of the cover, so that the stain may gradually spread within. On closely watching its entry the tips of the hairs upon both leaves and roots will be seen to be the first to accumulate the colour, and that it will then extend inwards into the intercellular spaces, of which these hairs are extensions, apparently with a view to increasing the area of the absorbing surface.

The providing of this twofold source of supply is only another manifestation of that supreme wisdom of the Creator, which, like the bubble of air in the egg, is too simple in its design not to be misunderstood, but which, like Columbus with the broken egg, when explained is too evident to admit of the slightest doubt ; in fact, it is scarcely possible to conceive how the desired ends could be attained in any other way. By the aid of staining it is shown that the fluids taken in at the roots find their way up through certain passages only in the stems and stalks, and ramifying veins of the leaves, and up to the extreme margins of the latter, whence the superfluous moisture is given out again back to the atmosphere, as may often be seen early in the morning in a vinery after a night's rain, when the leaves will be found to be all fringed at the edges with small drops of water like pearly dewdrops. Now, as these longitudinal passages are in immediate connection with the growing tissues, it is obvious that it is from this source the woody fibre, starch, and other solid tissues derive their materials of increase ; while, on the other hand, the carbon, oxygen, and water, &c., derived from the atmosphere and insinuating themselves between the individual cells of the parenchymatous tissue go to the production of sugar, gum, wax, resin, the essential oils, and other similar products. In the grafted tree we find the stock furnishing the crude material ; but it is the electro-chemical action occurring between the pith and the bark of the scion that converts this primary upward current in combination with the preceding supply from the external source, crossing the former into the special compounds peculiar to the particular variety in question. Now as all growing cells have, like the egg, one or more nuclei or negative centres of growth, these fed from the intercellular spaces, when the parent cell shall have attained its full growth, then take up the action and follow in like course, and so on by repetition of division or multiplication stems and leaves acquire their full size and density. But as the electrical action is between the pith and the bark the diaphragm necessarily forms longitudinally or in the direction of the plant's extension.

In the consolidation of the albumen at the centre of the divisional wall C of fig. 96, the material became at length so hard and horny (or almost bony even) as to intercept the action ; but had

there been an extraneous supply of moisture entering from without, this doubtless would have kept the part sufficiently moist to allow the continuous passage of the force. Now in plant growth, the upflowing sap is ever during growth undergoing this consolidation, but its undue solidity is prevented by the constant accession of moisture from without. In its upward course the upflowing sap is thus being altered in its composition by the transverse electro-chemical decomposition in proportion to the distance it has to traverse relatively. "Mr. Knight," says Sir Humphry Davy in his "Agricultural Chemistry," "made numerous incisions into the alburnum of the Sycamore and the Birch at different heights; and in examining the sap that flowed from them, he found it more sweet and mucilaginous in proportion as the aperture from which it flowed was elevated." Sir Humphry Davy states it to be his own opinion "that the cambium (between the tree and the bark) from which the new parts in the trunk and branches appear to be formed, probably owes its powers of consolidation to the mixture of two different kinds of sap, one of which flows upwards from the roots, and the other of which probably descends from the leaves." It has, however, as previously observed, never been possible to detect by staining any descending sap-action whatever. Still, the admixture of two different kinds of fluid is an undoubted fact, although the source and intent of the second supply does not appear to have been rightly suspected." Sir Humphry Davy then goes on to observe that "the increase of trees and plants must depend upon the quantity of sap which passes into these organs; upon the quality of this sap; and on its modification by the principles of the atmosphere." From this asserted "modification by the principles of the atmosphere" it is sufficiently evident that to this operation much import was attached, without, however, any attempted explanation of in what these principles consisted. In supplying these deficiencies the existence of an "electro-polar" arrangement of the structures offers a very intelligible explanation of the means made use of, for their polarity could be effective only when responded to by the electric polarity of the atmosphere; and as was experienced in the plant-case previously noticed, when this polarity was upset, plant growth ceased to flourish and fungi took its place, a circumstance throwing much light on the production of mildew as well as on the cultivation of Mushrooms.—W. K. BRIDGMAN, *Norwich*.

#### MUSSÆNDA FRONDOSA.

AMONGST winter-flowering plants the above should be grown; in fact, it is worth a place in every stove, however limited the collection of plants may be. It is an evergreen plant of sturdy habit, and can readily be grown into a good bush. When well grown this plant is far more attractive than the white Poinsettia. The flowers are produced in terminal racemes, and are a pleasing yellow colour, while the bracts are pure white. The bracts and flowers are freely produced, and a good bush is very imposing. They are produced in quick succession; when one batch is gone the plants make a slight growth and more flowers and bracts are produced. It will flourish in an intermediate temperature, but its growth is not so rapid nor its foliage or bracts so fine as when in a stove.

This plant is easily propagated by cuttings in spring if the ends of the young shoots are taken off, and either inserted singly or a number round the sides of a 5-inch pot, which should be well drained and filled with equal parts of peat and sand, with a layer of the latter over the surface. It is not necessary to take the cuttings with a heel. Plunge the pots in the propagating frame, and if bottom heat can be given it is better, although the cuttings root readily under the shade of Cucumbers and Melons if covered with a bellglass. When several are inserted together it is essential to attend to the young plants as soon as rooted before the roots become matted.

Pots two inches in diameter should be the size first used, and when the young plants are established in them the points must be pinched out to cause a branching habit, and to form little compact bushes. Potting should be attended to from time to time as the plants require it, never allowing them to become rootbound until they receive their final shift, which entirely depends upon circumstances and conditions. If large specimens are required good plants can be grown in 10 or 12-inch pots, but for ordinary purposes 5 and 6-inch pots are large enough. Stopping should not be attempted after August if the plants are required for autumn decoration. It is well to keep specimens growing on until they attain the desired size. Good drainage is essential. *Mussaenda frondosa* does not appear particular as to soil, and thrives well in rich loam, a seventh of decayed manure, and a little leaf soil, or in loam and peat equal parts, with a good quantity of coarse sand to keep the whole porous. The soil should

be pressed rather firmly into the pots, as the plant is of a woody nature and has rather fine roots.

Staking and tying is not necessary if precaution is taken, as the plant grows, to keep the shoots properly pinched. A few stakes might be of advantage in the case of a specimen to fasten the shoots to for the purpose of forming the base, but when once formed the stakes can be dispensed with. Liberal applications of water should be given while the plants are growing both at the root and upon the foliage, and after the final potting and the pots are full of roots, liquid manure may be freely given, and occasional doses of root water, which greatly invigorates the plants and tells considerably upon the foliage and improves the colour of the bracts.

During the summer the plants should have a place as close to the glass as possible, and air should be allowed to circulate amongst them freely, closing the house in which they are grown early in the afternoon, and syringing the plants at the same time. Shade is necessary during the hottest portion of the day. During winter the plants succeed well in a temperature of 60°, and after well ripening appear to grow and bloom continuously for a time, after which they can be pruned and started again. For ordinary decoration young plants annually raised from cuttings are preferable.

*Mussaenda frondosa* is subject to most insects that infest stove plants, although I have never observed mealy bug upon it. Spider or thrip can be kept down by the use of the syringe, and if scale does not trouble them much. The young foliage is very impatient of fumigating, and is quickly injured however carefully the operation is performed. The plant is well suited for associating with *Calanthe Veitchii* and *C. vestita* when in flower.—WM. BARDNEY.

#### THE VEGETABLE SUPPLY FOR TOWNS.

I AM particularly pleased that my words on this subject have drawn the attention of several able writers, and so led to a discussion. Sometimes in papers and periodicals there are discussions on very frivolous subjects which cannot possibly result in any good, but here is one connected with the health and food of the people; also it is connected, on the other hand, with—so I deem—the advantage and increased prosperity of the food-producer. The subject, then, is worthy, for it is one to benefit producer and consumer.

Next I would observe that it is easy to write in such a general way as to please readers, or at least a way unlikely to provoke criticism; it is also easy to write, too, so recklessly as to be needlessly irritating. I desire to do neither; but I am heartily gratified when what I have happened to write sets other men thinking, produces sensible replies, wholesome criticism, or new useful remarks. I would infinitely rather have writers dissent strongly from me on a useful subject—one calculated to benefit men, and still better women, and best of all children—than that no notice should be taken and the matter be allowed to drop out of sight.

I will first notice the words of Mr. John Wills—and by the way let me express the pleasure I feel in seeing his once well-known name in the columns of "our Journal," from which it has disappeared for more than ten years; it is a real pleasure, I assure him, to see his name once again. During the eighteen years I have been a writer so many contributors, once so well known, are gone, either into the silent land or have dropped their pens, that it is quite refreshing to find one at least reappear. I am glad Mr. Wills has been with us in feeling all along. I am thoroughly gratified that he agrees so much with me in regard to the future of gardening. I fear, however, that the ornamental must for a while be in abeyance to the useful; that the vegetable must take precedence of the flower. When agriculture revives then I shall hope to see the bonny faces of our farmers' daughters and the comely forms of their mothers at (may they be the universal) parochial flower shows; but no one, save those living among them, can know the terribly low financial condition of the south and south-western farmers.

I have last week dismissed all thought of London and the London supply of fruits and vegetables; I thought not of the metropolis. Neither am I sure that peasant proprietorship would do in agricultural matters; but this I am sure of, that it would be to the advantage of landlord and tenant if larger gardens were in the possession of the industrious poor, the owner adding on land, say from half an acre to an acre, and planting part of that land with fruit trees. He must be at that first expense, and in ten years' time benefit will come to his property.

The very first sign I have known in a cottager desiring and trying to improve himself is the wish to have a garden. Tobacco, beer, public house, slatternly wife, and broken furniture—these



go with the man who has no garden and who desires no garden; but if the desire comes there is hope of and reason to expect a change in him and in her for the better. None are so utterly extravagant as the very poor. When a man improves and prospers he becomes more prudent in money matters; so I say, Help him to improve, landlord. Then when improved he becomes a better citizen, a happier more contented man; his children better fed, and tidiness takes the place of dirt and discord. Another reason why more land may with advantage be given to a poor man is, that for his class he is now well off, and can afford to buy tools; the farmer and landlord, for their respective positions, are far poorer than the able-bodied labourer. Again, in pleading for an increase of gardening in the country and around country towns, there would be no cause of jealousy in the market gardener near London, because there the supply is greater than the demand.

I have some knowledge of Birmingham, some also of the cotton districts, and unless things are improved there is a deficiency of vegetable supply in both, and to my mind no faces are more sad to look at than a Birmingham woman's and child's of the lowest class. In the cotton districts of Lancashire bad cookery is the rule among the mill hands. When they are prosperous it is all the frying-pan with ham and eggs in it—well enough for a change, but unwholesome as a regular diet. My argument is, Supply will raise demand. If the local papers are led to notice the many gardens around a town, and the larger supply of fruit and vegetables, and as all now read newspapers, I hope the vegetable would go into the frying-pan with the bacon and ham. Mr. Wills tells us he has done something to advance gardening for "the benefit of his fellow men;" let others try and do the same. As gardening advances among the poor vice receives a check. The man who works on his land during the evening cannot be at the public house.

In regard to the communication of Mr. Iggulden of Orsett, Essex, who in parliamentary language says "he desires to move an amendment to my address," his words refer, as naturally they would from his nearness to London, to the London market gardens, with which I have shown I have nothing to do. One word in regard to my Cornish critic, Mr. W. Roberts of Penzance, who contributes a short but useful article. He says Onions are not in favour with Cornish gardeners; that of course may be. I rather think they would find a more extensive sale in large towns where there is a great artisan population. One thing I am sure of, they are excellent additions to diet. I often eat a supper of stewed Onions, and so do my family. Mr. Roberts mentions Parsley as a profitable crop—one I should not have thought of—hence showing the advantage it is to set many pens to work. Asparagus he also mentions. This might appear oftener on the tables of the better class, and not be regarded as merely a rich man's vegetable; it is also very wholesome. Celery, again, is, if eaten slowly, of a kindly aromatic nature, good for man and of benefit to those suffering from rheumatism. There is one other, hardly vegetable, the humble Watercress, "the only indigenous weed which is thoroughly wholesome," as a London physician remarked to me. But who gets enough Watercresses brought to his door? I would have carts go regularly through every street, and particularly the back streets of our towns, and vendors carry to the doors baskets tastefully set out with specimens of all the vegetables for sale, not forgetting the humble Watercress.

I thank my critics for their kindly and able remarks, and I ask for other pens to be set to work, for I do believe good will arise. A little thought is like a little seed, many thoughts like many seeds, and all good thoughts are productive of good; but as seed must be sown, so thoughts must come to words. At present I will say no more, only to remark that the high price of meat should itself cause the thrifty to look out for other and cheaper food. Where shall they find it? I answer, In using in far greater quantities wholesome nutritious vegetables. Many people dislike Parsnips. Why? Because as children they were not brought up to eat them. Yet a pig will do better on Parsnips than on Potatoes. A horse will do far better on Parsnips than on Carrots. Children naturally love sugared things, and sugar is abundant in the Parsnip. It is custom, and custom only; thus our ancestors ate pease pudding habitually, now few people eat it since Potatoes came in. Custom again. In an advancing civilisation I want reason to rule in matters of diet, not custom.—WILTSHIRE RECTOR.

UNQUESTIONABLY this is a subject of great importance, and it has to be considered in so many aspects and is governed by so many circumstances that it is only natural that there should be a considerable divergence of opinion in regard to it. Animated by the best possible motives, and impelled by a desire to benefit both producers and consumers of vegetable produce, "WILTSHIRE RECTOR" advocates the cultivation of garden crops on farms.

Mr. Wills, who is entitled to be listened to with respect both as a practical cultivator and a successful business man desirous of benefiting his fellow men, appears to be much of the same opinion as "WILTSHIRE RECTOR." A correspondent, "W. P. B." (p. 44), and Mr. Iggulden (p. 64) hold different views, and they appear to have very good reason for considering that the vegetable supply near London already exceeds the demand. I am of this opinion; and knowing something of market gardening, although not now engaged in that vocation, I feel that I can approach the subject without prejudice.

"WILTSHIRE RECTOR'S" remarks on page 1, the general tone of which has been so much and deservedly admired, did not, it appears, apply to London and the sources of its vegetable supply. No one who travels through the market-gardening districts within twenty miles of the metropolis can fail to be struck with the plethora of vegetables, and to observe acres and tons of produce decaying in the fields, and I am of opinion that this is to some extent an index of the state of the country generally. Not long ago I visited the Saturday night's vegetable market in a county town in the midlands, and, as some of the vegetable growers of the district were known to me, I had no difficulty in becoming acquainted with the vegetable supply and demand there. One of these men in answer to an inquiry said, "Talk about agricultural depression; but if the farmers are worse off than we are they are bad indeed. It is only by working every hour of daylight that I can live; saving a little money is out of the question." This was the remark of a man as steady, industrious, and with as much practical knowledge of market gardening as most men. Another man equally steady and industrious, but who had not been "brought up" to the business, said in answer to the question "How are you getting on?" "On! I'm sorry to say I am not getting on at all. I am going back, and shall have to get out of this before I lose what little I have." This man had been in business between two and three years, and was longing to again become a gentleman's gardener. "Look round the market," said this man, "and judge for yourself whether half the vegetables can be sold." I not only looked round then but later, and found that quantities were *not* sold, and could not be sold at any reasonable price: in fact they could not be sold at all. "We could manage," said my informants, "if it were not for the Londoners; but when they send tons at a time down just a week before our stuff is ready they dish us completely and we can't help ourselves." There is a great deal of force in that observation; there is no sentiment about it, but it is a stern, hard, business fact.

Further north, in one of the largest manufacturing towns, I have a friend who is a greengrocer. On noticing his excellent vegetables—Lettuces, Cauliflowers, French Beans, &c., early in the season, he remarked, "They are all Londoners. The growers about here don't put stuff enough in the ground; besides they are too late, and London grades sell the best." I knew before he told me that the vegetables I was examining were grown in the south. I have seen tons of them sent off from the London vegetable grounds, the railway companies sending a dozen large vans into a field at night, which are sent away loaded before daylight the next morning. What chance have the local midland and northern growers against a system—a perfectly legitimate system—such as this? and what chance—I ask the question in all seriousness—have farmers who "take to" vegetable-growing anywhere against these practised cultivators and born marketers with their splendid land and keen business aptitude?

If vegetable-growing is the sheet anchor of farming the farmer's case is hopeless. The advice given by well-intentioned M.P.'s and public men generally, looks well enough "on paper," but put into practice in the fields it is found wanting. The plough cannot compete with the spade in vegetable culture, and farmers cannot "pick up" in a year or two the requisites of successful market gardening, while it is not in the nature of things that M.P.'s can teach them. Still, farmers have one advantage—if they cannot sell their Cabbages, &c., they can give them to their stock, which is what purely market gardeners cannot do.

Mr. Wills' admirable suggestion on page 63 to enlarge the gardens of cottagers in the country is another matter. These people could both grow and sell produce cheaply, and it is cheapness with quality that creates a demand for a commodity; and they can also deal with the consumers, which is a point of great importance, for whatever profit is yielded by vegetable culture the salesmen and middlemen get the bulk of it. Until there is a much greater consumption of vegetables it will not, in my opinion, be sound policy to induce farmers to cultivate them largely—at least not safe for the farmers.—AN OLD HAND.

PRIZES FOR THE IMPROVEMENT OF ASPARAGUS CULTURE.—With a view to improving the culture of Asparagus throughout



the United Kingdom, it is proposed to give a series of annual prizes, extending over a period of seven years. These prizes will be given in London, Dublin, Edinburgh, and the north, south, and west of England in different years. The first Exhibition will be held in the south-eastern counties and in Kent, at Tunbridge Wells, in the horticultural tent of the Exhibition of the Bath and West of England Agricultural Society, which opens on the 6th day of June, 1881. The following prizes are offered for the first year's Exhibition, and are open to growers in any part of the United Kingdom:—*Prizes for Gardeners in Private Places.*—For the best bundle of Asparagus grown by the exhibitor—first prize, £4; second, £2 10s.; third, £1 10s.; fourth, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where, in the opinion of the Judges, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the Judges in all cases where they think it well to do so. No imperfect or double heads will count. *Prizes for Amateurs not Employing any Regular Gardener.*—For the best fifty heads, £2 10s.; second prize, £1 10s.; third prize, 15s. Grown by the exhibitor. *Prizes for Cottagers.*—For the best twenty-five heads grown by the exhibitor, £1 10s.; second, £1; third, 10s.; fourth, 5s. *Prizes for Market Growers.*—For the market grower who shall exhibit the best three bundles, each containing one hundred heads, £5 5s. This prize is offered by the Bath and West of England Society, and is open to growers in any part of the United Kingdom. For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads:—First prize, £3 3s.; second, £2 2s. These prizes are offered by Mr. Samuel Spalding.

#### FLORISTS' AND POPULAR FLOWERS.

**AURICULAS.**—The cold frames containing our plants have been covered with mats for more than a fortnight, but the plants have sustained no injury. They will be looked over now, and have all decayed leaves removed and the surface of the soil stirred as needed. The plants generally commence fresh growth during February, and more water will be required; still it must be applied cautiously, but never in dribbles to moisten the surface and leave the roots dry below. Towards the end of the month an inch or so of the surface soil must be removed from the pots and a fresh and richer compost added. A compost of half turfy loam and the remaining half decayed cow dung and leaf soil is suitable; and rooted suckers may also be removed at the same time and potted. If the surface dressing is delayed until the roots from the collars of the plants have penetrated the soil they do not readily take possession of the richer compost. The work should therefore be done in good time, and water must be carefully supplied afterwards.

**CARNATIONS (PERPETUAL).**—In order to have a good display of these valuable plants for autumn or winter decoration, cuttings or pipings should be inserted in pots of light soil, and placed in a temperature of 60° to 65°. In bottom heat the cuttings will root more quickly. If there is any scarcity of cuttings of any variety place the old plants in heat, which will assist the growth. The small side growths are the best, but stronger will also strike freely if the lower pair of leaves are carefully removed. Miss Jolliffe, Covent Garden Scarlet, La Belle, A. Alegatière, Celestial, Guelder Rose, Proserpine, Prince of Orange, and White Swan are all good varieties.

**CINERARIAS.**—Plants flowering or approaching that condition will need a temperature of 40° to 50°, and should be well exposed to light to improve the colour. Those producing their flower heads may be assisted by liquid manure, and if the plants are in comparatively small pots it may be used every time they require water, being careful to give it in a weak state. Shift later plants into the flowering pots, employing good loam with about a fourth of thoroughly reduced leaf soil or manure, which is suitable for most quick-growing plants. Fumigate moderately upon the first appearance of aphides.

**CALCEOLARIAS.**—These require similar treatment to Cinerarias, both delighting in a tolerably cool atmosphere and little fire heat; at the same time frost is injurious to them. Calceolarias thrive well if placed on a shelf near the glass; and where the best strains of these are grown they give a display during the early spring months scarcely equalled by any other plant, and form a good succession to the Cineraria. Aphides are often very troublesome, and require frequent attention to destroy them.

**CYCLAMENS.**—These are amongst the most useful winter-flowering plants, being general favourites from the length of time they remain in bloom and their suitability for cutting. A small

house or pit, where they can be near the glass and have an intermediate temperature, is most suitable for them, and they then well repay any attention bestowed upon them; but where they must be grown with other plants a good light position should be afforded them, and they must receive every attention in watering, alternately supplying weak liquid manure. Some of the hardy Cyclamens grown in pots and removed to the greenhouse in autumn are very pretty. *C. neapolitanum*, *C. Coum*, and *C. ibericum* so treated are now in flower.

**DAHLIAS.**—Where it is desired to obtain a good supply of any variety the roots must be placed in heat. To effect that increase take the cuttings which will soon be produced if the roots are in a warm position, and insert them in a little bottom heat, a temperature of 50° to 65° being suitable. They will quickly strike, and may then be potted off. Most of the Pompon varieties are so useful for decorative purposes in the autumn months that gardeners would do well to give attention to them. The varieties White Aster and Little Dear are very beautiful. We grew a large collection of them last year, and they were admired by all who saw them. The Cactus Dahlia (*D. Juarezi*) has attracted much attention during the past two years; the peculiar spreading form of the florets combined with their brilliant colour will soon cause it to become a general favourite. Paragon, lutea, coccinea, and other single varieties will also be much sought after this season.

**GLOXINIAS.**—Seed of these favourites may be sown now, and if the young plants produced are grown rapidly on they will, in the majority of cases, afford a good late autumn display. Formerly this plant was looked upon only as a summer-blooming plant, but now the season of its flowering is very much prolonged by raising a collection from seed and by resting the old plants at different periods of the year. The seeds are very small, and cannot endure heavy and careless watering. Sow them on the surface of some finely sifted soil in pots about three parts filled, placing a piece of glass over the pot to prevent rapid evaporation; or a little moss over the seed answers the same purpose, only it must be lifted before the seedlings become drawn.

**FUCHSIAS.**—Plants of these in heated structures will soon commence growing. When they have grown about an inch the greater part of the old soil should be shaken from the roots, placing the plants in smaller pots, employing a moderately light soil to which leaf soil and silver sand have been added. Early vineries or Peach houses are well suited for starting Fuchsias. The young growths afford excellent cuttings for a healthy stock of young plants for autumn blooming. Old exhausted plants may be destroyed after furnishing a sufficient stock of cuttings, or all the side growths may be cut away and the top growths encouraged to form standards, in which form they are very suitable for arranging with other plants when in bloom. Syringe them freely while growing.

**LILIUMS.**—Some of the earliest-flowered plants of *L. auratum* and *L. longiflorum* will be starting into growth, and must occupy light positions to insure a sturdy growth. If any have been placed beneath stages they must not be allowed to become very dry, as the roots are always more or less active, and should have sufficient water to keep the soil moderately moist. If they were not potted as soon as the foliage fell, which is the best time, the whole of the soil above the bulbs should be carefully removed as far down as can be done without disturbing the roots, and some good fresh loam and about a third of leaf soil with a sprinkling of sand supplied instead, giving as much water only as is needed to render the soil moist.

**PELARGONIUMS.**—Plants of Show and Fancy varieties that have rooted freely will now require a shift into larger pots, but by no means overpot them, which is too frequently the case, and causes them to produce more foliage than flowers. An 8-inch pot is the largest size employed for exhibition specimens; therefore a 6-inch pot is large enough for all ordinary decorative plants. A compost of good yellow loam, silver sand, and decayed hotbed manure is suitable for them, and they should be potted firmly. With the outside shoots pegged down to the soil, plenty of light, and a minimum temperature of 45°, good healthy plants will be procured.

**PRIMULAS.**—Keep these plants near the glass, and be careful in watering, giving when necessary a thorough supply, alternating with liquid manure. To insure the trusses coming up well above the foliage afford a temperature of 45° to 50°, ventilating upon every favourable opportunity. Some of the hardy kinds introduced to this structure from frames are welcome in spring. *P. cortusoides* and vars.; *P. nivalis*, *P. denticulata*, *P. intermedia*, *P. purpurea*, and *P. verticillata* are useful employed in that way.

Seed of *Primula sinensis* should now be sown; a frame on a hotbed or the shelf of a stove is a suitable position for them. There are now several good strains in cultivation, and it would be wise to procure those advertised by some respectable firm, as it is quite

as easy to grow a good variety as a bad one. Be very careful in watering the young seedlings.

**HARDY FLOWERS.**—All plants, especially young plants, in beds and borders, must have attention immediately the ground becomes fairly dry. Such plants as Pansies, Pinks, Carnations, young Phloxes, Pyrethrums, &c., are sure to be more or less displaced with the frost, and it is important that the soil be pressed gently yet firmly round them; or should dry weather ensue, as it will do before the flowering period arrives, the plants will sustain considerable injury. After the soil is firmed round the plants a surfacing of fresh compost will in many cases be advantageous, and if this is of a sharp gritty nature it will sensibly impede the movements of snails and slugs.—**FLORIST.**



THE FROST departed in the metropolitan district as suddenly as it came. "Every day," Mr. G. J. Symons writes to us, "from the 12th to the 27th of January the temperature was below freezing. It was one of the most remarkable cold periods of this century, but shorter in duration than that of January, 1814." Last winter the duration of the severe frost was from November 14th to December 28th, 1879; and the lowest reading of the thermometer at Blackadder, N.B., was 23° below zero, registered by a thermometer that Dr. Stuart considered quite correct; this year the greatest cold at the same place was 22° below zero. In Ireland the frost has been more severe this year than it was in 1879, and has been generally more intense in Scotland. At Chiswick in 1879 the lowest reading of the thermometer was 10°, or 22° below freezing; this year it was 5°, or 27° below that point. The average minimum temperature at Camden Square, London, during the frost of last winter was 27.7; this winter it was 18.8. The greatest cold at the same place was 16.1° on December 7th, 1879, and 11.8° on January 17th this year. The temperature of the soil at 1 foot below the surface on the last day of the frost this year was 33.1, and exactly the same on the last day of the frost of last winter. In reference to the weight of snow that fell in the metropolitan area chiefly on the 25th ult. and which, according to parliamentary reports, was estimated at 8½ million tons, the *Gardeners' Chronicle* suggests that the amount was probably a misprint for 3¼ millions of tons; and we quite agree with our contemporary, as, calculating on the acknowledged data that 12 inches of snow is equivalent to 1 inch of rain, and that an inch of rain equals 101 tons of water per acre, the result would be about as stated by the last-mentioned figures. We have heard of much injury resulting from the frost, but hope to learn that the snow has proved a valuable preserver of vegetation, and that the damage will not generally be so great as after last winter. As showing the inaccuracy of computing the "degrees of frost" instead of the readings of the thermometer, a correspondent informed us that there were "seven degrees of thaw" last Friday morning, meaning that the temperature was 39°.

— WE may remind our readers that the ANNUAL GENERAL MEETING OF THE ROYAL HORTICULTURAL SOCIETY will take place on Tuesday next, the 8th inst., at 3 P.M., when the report of the Council will be submitted, and the general business of electing officers and members of the Council transacted.

— AT the LINNEAN SOCIETY to-night (Thursday) the following papers will be read—"Notes on Cyperaceæ," by G. Bentham; "Observations on some British Fishes," by Dr. Francis Day; and "Remarks on the Coffee-leaf Disease in India," by William Biddie.

— WE are sorry to record the death on the 23rd ult. of MR.

P. J. PERRY of the old-established nursery at Banbury. Mr. Perry was second son of the late Mr. Thomas Perry, his predecessor in the business, and younger brother of Mr. Thomas Perry, who was formerly of the firm of Knight & Perry at Chelsea.

— WE learn that MR. DANIEL JUDD, who has been for some time gardener at Warwick Castle, recently retired from that post, and was presented by some friends in the neighbourhood with a handsome timepiece and gold scarf pin as a testimony of their respect. MR. W. IGGULDEN on resigning charge of the gardens at Orsett Hall was also presented by his neighbours with a handsome testimonial of their esteem, as by his courteous demeanour he had secured the respect of a wide circle of friends in the district.

— MR. J. PERKINS, Thornham Hall, Eye, Suffolk, sends us a RECORD OF THE FROSTS during the past four months, in which we notice that the lowest temperatures in each month were the following:—October 24th, 7° below freezing; November 23rd, 12° below freezing; December 22nd, 9° below freezing, and January 30° below freezing, or 2° above zero. In referring to the vegetable crops he observes that the Broccoli were all laid down in the autumn, and are saved; Lettuce, &c., which were covered with snow, were also uninjured.

— A VERY extensive cultivator of bulbs sends us the following note on the BLUE ROMAN HYACINTH—"This note is to warn those who, like myself, might be tempted to give it a trial, knowing the worth of the white Roman form. It is rightly named, but useless and not worth growing. After two seasons' trial I strongly condemn it. It is not in the least adapted for forcing, and a great per-centage of bulbs will not flower. It is no earlier than *Scilla siberica*, and cannot in any respect equal that charming little bulb."

— WE are requested to publish the following announcement:—"Messrs. James Carter & Co., having received the ROYAL COMMAND to attend at Marlborough House, that firm enjoys the high distinction of a royal warrant appointing them seedsmen and nurserymen to His Royal Highness the Prince of Wales."

— WE are informed that the ALEXANDRA PALACE AND PARK, Muswell Hill, will be sold by auction on February the 11th, by order of the London Financial Association.

— JUST on the eve of going to press we have received a lengthy report of the first ORDINARY GENERAL MEETING OF THE GENERAL HORTICULTURAL COMPANY that was held at Warwick House, Regent Street, on Monday last, which it is impossible under the circumstances that we can insert. The auditor's report shows that the amount of business done during the eight months was £22,600 2s. 8d., and the gross profit £13,919 16s. 10d. The profit and loss account shows a nett profit of £3,601 4s. 9d. Mr. Wills commenced business ten years ago with a sum of £300; on the formation of the Company the amount due to him was £24,581, £11,000 of which he took in fully paid up shares; he has since taken £10,000 in the same manner, so that his shares amount to £21,000. At the meeting Mr. Wills stated his willingness to relinquish the interest of his unpaid purchase money in order that the shareholders might receive a dividend of 5 per cent.; but the shareholders present, while thanking Mr. Wills for his liberal offer, declined to take from him what was lawfully his own. Much confidence was expressed in the position of the Society, and an increased number of shareholders is anticipated. The total number of shares taken is 2,414, the working capital having been only £7,906, and a good dividend is expected at the close of the financial year.

— THE Council of the Society of Arts inform us that they are prepared to award a Society's silver medal, together with

a prize of £5, which has been placed at their disposal for the purpose by Mr. G. F. Wilson, F.R.S., for the BEST LABEL FOR PLANTS. The object of the offer is to obtain a label which may be cheap and durable, and may show legibly whatever is written or printed thereon; the label must be suitable for plants in open border. These considerations will principally govern the award. The award will be made on the recommendation of a Committee, which will be appointed for the purpose by the Council. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the Secretary of the Society not later than the 1st May, 1881. The Council reserve to themselves the right of withholding the medal and prize offered if, in the opinion of the Judges, none of the specimens sent in are deserving. Communications on the subject should be addressed to Mr. H. Trueman Wood, Secretary, John Street, Adelphi, London.

— THE RICHMOND HORTICULTURAL SOCIETY.—Last year was an especially trying one to not a few horticultural associations, both metropolitan and provincial, on account of the inclemency of the weather, and the rain falling on so many "show days." This necessarily affected, in some instances seriously, the finances of the societies, as the majority of them are to a very great extent dependant on "gate money" for their success. The Society under notice, we perceive, continues its prosperous course. Its income last year was larger than ever—£734 4s. 4d.; as also was the amount disbursed in prize money at the summer and autumn exhibitions—£315 3s. 6d., leaving a balance of £65 8s., the clear balance at the commencement of the year having been £10 4s. 4d. The two Shows held in 1880 were of remarkable excellence, certainly amongst the finest in the neighbourhood of the metropolis; they were, in fact, worthy of the Royal and distinguished patronage they received, and of the sound generalship and admirable management that have in seven years placed the Society in such a satisfactory position. A gratifying feature to be noticed is the great number of donors of special prizes, a circumstance that indicates the personal interest that is manifested in the Society, and which contributes materially to the vitality of all organisations of this nature. With the increasing support that may be expected to be accorded still greater results may be anticipated, the horticulture of a beautiful district will be improved, and much more than local fame achieved by this Society, to the success of which the untiring efforts of the Secretary, Mr. Chancellor, have so largely contributed.

#### SCIENCE IN HORTICULTURE.

I HAVE no intention of answering "SINGLE-HANDED," who has much misunderstood me, but wish to correct a statement. I did not say that the Sarracenias were dead, but that the pitchers which contained the flies were. Anyone who knows Mr. Bull's success as a grower would smile at the idea of his losing his plants through ignorance. I do not scoff at science, but at much which goes under its name. I have the pleasure of recollecting that I founded a Society for purely scientific purposes, which has done a good work; but in these days the true principles of inductive philosophy are pushed out of the way by "probabilities," "likelihood," and such-like uncertain things.—D., Deal.

I AM glad that "SINGLE-HANDED" did not include all clergymen among those from whom he expects to hear the same opinions with regard to science as he attributes to "D., Deal." Those who know anything of the subject are familiar with the names of Buckland, Sedgwick, and Conybeare, who in the early days of geology did so much to advance that science. All of these were clergymen; so was John Ray, the founder of modern botanical science, which can claim so many clergymen as its votaries. Then there was Bishop Stanley of Norwich; and we have still among us the Rev. M. J. Berkeley, who is an embodiment of all the sciences. From a pretty extensive knowledge of the clergy, my experience is that among those of them who are well educated there is a strong sympathy with science; but no doubt there are

among them some who have no taste for scientific pursuits, and others who have a hazy idea about what is science and what is not—in this respect ranking with not a few gardeners.

After all, however, "D., Deal," has done good service by contributing his letter on page 24, for it has called forth two interesting replies. Facts prove in a very conclusive manner that science has done very little towards averting the Potato disease; but we must all respect the efforts of those who by their researches and experiments have endeavoured to mitigate the effects of it. My object, however, is not to discuss the general question that has been so ably handled, but to advert to the subsidiary one of glazed flower pots, and to observe that your correspondent, "SINGLE-HANDED," who defends science so stoutly, gives it small credit in this matter. "Science," says your correspondent, "has proved for us that the only difference between ordinary pots and glazed ones is that ordinary pots get very dirty in a short time, while the glazed pots remain clean." If that is all that science teaches on this subject it is not much, although I agree it is important; but when "SINGLE-HANDED" asserts it is the "only difference," I must join issue with him. If I mistake not, science teaches something else on this question. But I must pause, for I am reminded that science is a two-edged sword, and cuts both ways, for I am informed that porous pots are scientifically sound in principle; and if I make the counter-assertion that glazed pots are also scientifically correct, and prove my assertion, and if "D., Deal," has proved they are correct also, what wonder is it that he alluded to them in the manner he did? I have not a doubt that he had good reason for his statement in respect of those pots, and I fail to see that he has written anything extraordinary regarding them, and certainly nothing so strange as the statement of "SINGLE-HANDED'S" "only" difference theory.

Science teaches me that glazed pots are essentially conservators of the virtues of the soil. If "SINGLE-HANDED" will analyse the water that passes through the rich soil of his flower pots daily I think he will find that it has not left *all* its manurial properties behind it. But he may naturally ask, "Is the water that passes through the soil in glazed pots different from that which passes through the soil of porous pots?" My answer is "No;" but there is another element in the case, and an important one. In brewing the oftener water passes through the malt the weaker the ale, and after three or four "mashes" it becomes very "small beer" indeed. So in water passing through the soil; it may be so frequent in light potting, and so necessary to be often applied with porous pots, that a great part of the soil's virtues are washed away quite out of reach of the roots of the plants. The oftener the soil is "mashed" the weaker it becomes in nutritive elements; and if "SINGLE-HANDED" will pot say a dozen Auriculas, which were the plants that "D., Deal," referred to, in glazed pots, and a similar number of the same vigour in porous pots, employing the same kind of soil in both instances, and will grow all the plants in the same house or frame, and count the number of times he waters each dozen for six months, commencing with March, I think he will find a striking difference. The plants in the glazed pots will not, if properly managed, require watering half so many times as those in porous pots, and the soil in the former will consequently be found, if analysed at the end of the summer, much more fertile than the much-watered soil in the porous pots. I know a large collection of plants that are grown in glazed pots for the reason stated, and I should not hesitate placing these in competition as examples of healthfulness against any collection of plants of the same kind in the kingdom. I think, therefore, for the reason stated, that "SINGLE-HANDED'S" "only" difference theory is not a great compliment to science that he defends so bravely.

There is a certain florist in the south of England named Henry Cannell. Now this florist is not professedly a scientific man, but he acts on scientific principles nevertheless when he catches the water that drains through his flower pots into tanks below them and uses it over again. When in London three years ago I called at Swanley, and had the pleasure of half an hour's conversation with Mr. Cannell. He showed me his system of roof-heating—that is, of conveying small hot-water pipes along the roofs of his houses to "dissipate damp" from his Pelargoniums; he told me, too, of his tanks. "Depend upon it," said he, "there is no water like this" (the water that had drained from his plants), there isn't indeed; it's just the right strength, and the plants like it. Look at them!" I did look at them, and fine they were. They were not in glazed pots, but their condition was confirmatory in a very striking and practical manner of what I have advanced, and I feel I am justified in disputing the theory of your excellent correspondent that the clean and dirty pot question is not the "only" thing that science teaches on glazed pots.



Mr. Cannell, I trust, will pardon me for mentioning his name in connection with this subject; but I may say that I was so much pleased with his place and the attention I received—or more properly the information I obtained—that on the very first opportunity I shall visit the “Home of Flowers” again, but I do not promise that I shall tell the genial owner that I am—  
A NORTHERN GARDENER.

#### TINNEA ÆTHIOPICA.

ONE of the most charming plants for flowering in stoves at this period of the year is *Tinneæ æthiopica*, and in many gardens where it has received the little attention needed to have it in satisfactory condition it has become almost indispensable. Not only is the plant elegant in habit and the flowers richly and distinctly coloured, but they also possess a delicious fragrance very strongly suggestive of Violets, so that a few specimens in bloom will agreeably perfume a moderately large house. When, in addition to these qualities, the season of its flowering is considered, further recommendation is needless, and all gardeners



Fig. 21.—*Tinneæ æthiopica*.

who have to maintain a stove in an attractive condition will readily appreciate the usefulness of the plant, especially those who have grown it.

The woodcut (fig. 21) faithfully represents a small spray of a specimen, and also fairly shows the form, position, and numbers of the flowers. The corolla is two-lipped, the lower lip being of a fine maroon colour, and the upper one more of a rich crimson hue. The calyx is large, slightly inflated, and pale green. The flowers are freely produced in axillary clusters at the upper portion of the shoots. The culture is easy, a stove temperature being required, and a light rich soil of loam, leaf soil, and sand, the pots being carefully drained. Cuttings of the young shoots strike readily under a bellglass in a little bottom heat.

The plant has been found by Dr. Kirk, Capt. Grant, and Mdle. Tinné in tropical Africa, but to the latter is due the honour of having introduced it to this country. Seeds were sent to England in 1865, and from these plants were raised, one of which was first

exhibited at the London International Horticultural Exhibition in 1866 by J. A. Tinné, Esq., Briarley, Aigburth, Liverpool.—L.

#### THE VICTORIA AND PARADISE NURSERIES.

WHILE the great metropolis was still comparatively silent under its heavy and unusual covering of snow, with a temperature considerably below freezing point, but a clear atmosphere brightened by the somewhat feeble rays of a January sun, I visited Mr. B. S. Williams' large collections of plants at Holloway. There was snow in abundance, of that peculiar shade which it assumes after exposure to London smoke for a day or two, and all the cooler houses were surrounded by thick fringe of icicles suspended from the eaves, in many cases exceeding a yard in length. Mats had been freely called into requisition to aid the stokers in maintaining the necessary heat for the numerous choice plants from tropical regions, so that there was little in the outside appearance of the houses to convey any idea to a stranger of the floral beauties within. But I was confident there would be ample to compensate me for my journey, an expectation that was fully realised, though of course January is not the best time to visit a London nursery. For the benefit of those readers of the Journal who, being unable to visit our great metropolitan nurseries, are content with gaining their information second-hand, I will briefly note a few of the plants that attracted my attention, and which are worth the attention of gardeners or amateurs. The great feature in the Victoria Nurseries is at all times the Orchids, and with them therefore I will commence.

ORCHIDS.—All these appeared in excellent health; many were flowering, including several really useful species and varieties, the fresh vigorous growth and dark green foliage in other cases almost compensating for the absence of flowers. One of the first I observed was a specimen of the pretty *Dendrobium luteolum* with a number of its distinct pale yellow or buff-coloured flowers, which at this season are particularly acceptable. Another useful winter-flowering species of the same genus is *D. heterocarpum*, which with the floriferous *D. moniliforme* was in good condition. *Lælia anceps*, recently mentioned in this Journal, was represented by several beautiful varieties; one, appropriately named *grandiflora*, having unusually large blooms and a richly coloured lip. *Lælia albida*, a species with small whitish flowers, is not very striking, but well worth growing. Among *Cattleyas* the most notable were some handsome forms of *C. Trianae*, one named *rubra* possessing great depth of colour, and another—*magnifica*, combining clearness of tint with fine size and substance of blooms. A distinct form of the beautiful hybrid *C. exoniensis* was flowering well, and *C. chocoensis*, with a rich purplish lip and white-fringed sepals and petals, was similarly notable. An imposing and attractive Orchid that is too seldom seen is *Angræcum eburneum*; and the variety *superbum* as grown at Holloway is still more valuable, as it surpasses the type in the size and purity of the white lip. *Angræcum sesquipedale* is almost too well known to need comment, but a large and remarkably vigorous specimen formed a very conspicuous object in a bank of Orchids owing to the size of the flowers and the great length of the spurs. The *Vandas* were looking uncommonly well, and Mr. Burton informs me that they have considerably improved since the hexagon shading material has been substituted for that of heavier texture on the house containing them, as they have thereby been exposed to more light without the danger of scorching the foliage. Good forms of *V. tricolor*, *V. insignis*, and *V. suavis* were in flower, and the characters of those species are so well known that it is unnecessary to further refer to them. The generally appreciated *Zygopetalum Mackaili* well deserves all that has been written in its favour, for it is the most useful of the genus both in respect to its easy culture, its free flowering, and the beauty of its blooms. It was strongly represented by specimens that had been in flower for a considerable time. *Pilumna fragrans* with its charmingly scented flowers and the striking *Phaius grandifolius* are very dissimilar in appearance, but they are equally noteworthy, the latter being so free of growth and bearing its tall vigorous spikes of blooms in the dull season.

Among Orchids requiring a cooler temperature than most of the above the *Masdevallias* and *Odontoglossums* are grown in large numbers, but at the time of my visit there were not many in flower. *Masdevallia tovarensis* was, however, bearing its pure white blooms, and the peculiar little *M. polysticta* was also represented. The first mentioned is unquestionably an acquisition, as it flowers readily in a young state, and produces such a number of blooms that when associated with some of the richly coloured forms are most pleasing. *Odontoglossum cirrhosum* was in first-rate order, but the handsome variety of that species named *Klabochorum*, with its large blooms spotted with rich crimson

maroon, was especially remarkable, as it is highly valued by most Orchid growers. *O. Alexandræ* is a general favourite, and one specimen had a spike of nearly twenty fine flowers—an admirable example of an elegant species. Mr. Williams' specimens of *Cypripedium villosum* are well known, and though I missed some of the largest, there were still grand pieces in superb condition which were fast advancing for blooming.

In another warmer department were those charmingly delicate Orchids—*Phalenopses*, which can perhaps scarcely be rivalled in the whole of the immense order. The majestic *P. Schillerana* and the beautiful *P. amabilis* and *P. Lowii* were blooming with a small-flowered but pretty species named *P. Mannii*, which is rarely

seen. It produces a small raceme of several flowers with narrow petals and sepals, yellow spotted with chocolate, which renders it very distinct from the other species, and a casual observer might take the flowers to be those of an *Odontoglossum*, some of which they resemble. There were many other Orchids blooming in the various houses devoted to them, but the few noted will suffice to show that there was no lack of attractions notwithstanding the unfavourable exterior condition.

STOVES.—A cursory view can only be given of the occupants of these structures, although they merit a detailed description. Crotons were richly coloured, all the best varieties being grown; but the two new forms, *C. Stewartii* and *C. Warreni*, were con-



Fig. 22.—*IMANTOPHYLLUM CONCINNUM* (HORT. WILLIAMS).

spicuous for the elegance of their habit and the bright tints of the foliage; they are both first-rate varieties. *Dracænas* were similarly notable; the graceful narrow-leaved *D. superba*, so well adapted for decorative purposes, being excellent, with its bright crimson-streaked foliage. *Nepenthes* it is well known constitute one of the specialities at Holloway, and so many beautiful hybrids, species, and varieties are included in the collection that it is not easy to select the best; however, one that particularly attracted my attention was *N. Hookeri maculata*, which has very large pitchers thickly spotted with crimson maroon. In a less humid and cooler department were the two useful plants *Toxicophlæa Thunbergi* and *spectabilis*, which produce their white fragrant flowers in dense axillary clusters, even small plants in 60 and 48-size pots having clusters at nearly every axil. This is one of the good qualities of the plants, and as they are easily grown they are welcome additions to any collection either in a stove or intermediate house.

Near the above were plants of the peculiar but pretty *Cochlostema Jacobianum* which were fast advancing for flowering; it is surprising what fine specimens can be obtained from seed in about two years from the time of sowing with very ordinary care. A Bromeliaceous plant that is seldom seen in England is *Pepinia aphelandræflora*, which has long narrow strap-shaped leaves and spikes of crimson flowers; the habit is compact and the growth free, and it is likely to prove useful for associating with other bolder plants on the shelves of a stove. *Alpinia albo-lineata*, the new variegated form in this well-known Zingiberaceous genus, is distinct and neat, the narrow leaves being green striped with white; it retains the variegation very well as it advances in growth. I had nearly omitted mentioning the *Anætochili*, *Goodyerias*, and similar plants which would perhaps have been more correctly noted under the Orchids, but they seem more popularly to come under the heading of fine-foliage stove plants. The collec-



tion is very large, and the species and varieties in those genera are thoroughly well grown in the nurseries under notice; and many gardeners who imagine the difficulties attending the culture of those plants are so great, would be surprised to see the freedom with which they grow when a little skill is exercised in providing the particular temperature and humidity needed. In leaving one of these departments I observed a remarkably handsome specimen of *Eucharis grandiflora* with broad deep green leaves, and about thirty scapes, each bearing several large flowers—an admirable example of culture, and proving what can be obtained by careful treatment even within reach of the London smoke.

**GREENHOUSES.**—The display of flowers was not very extensive in these houses, for it is somewhat early in the season, but judging from the healthy appearance of Heaths, New Holland plants, and others to which departments are specially devoted, there is every promise of satisfactory flowering at a later period. Though it is generally believed that the demand for hardwooded plants is greatly diminished, this is not the case to such an extent as imagined, for large numbers are yearly propagated to maintain the supply. Yet there are many beautiful plants now comparatively scarce which might well be recalled to public notice, and if especial skill is requisite in their culture they are, when well attended, more creditable to the grower than are the majority of soft-wooded plants. In the Camellia house there was a grand show of buds, the handsome rich green clean foliage indicating the health of the plants and the prospects of good and abundant flowers. A few were already expanded, among them being the old but useful and floriferous variety *Donckelaarii* with its large crimson and white mottled blooms. Another neat double-flowered variety very profuse and of good habit was *David Boschi*, the blooms of moderate size and rosy pink in colour. *Madame Ambroise Verschaffelt* with white blooms marked with reddish crimson was a noteworthy variety; but *Comtesse Mastiana* was particularly fine, with beautiful foliage, of good habit, and bearing white symmetrical flowers slightly streaked with pinkish crimson.

One other plant I wish to note. This is a new *Imantophyllum*, received by Mr. B. S. Williams from the Cape of Good Hope, whence it was forwarded by one of his collectors a few years ago. It was considered distinct, and was appropriately named *Imantophyllum concinnum*. The plant was growing in a warm house, but I suppose it is amenable to the same treatment as its congeners, with any of the small-flowered forms of which it can be favourably compared. It is quite in the way of *I. cyrthanthiflorum*, but is superior to it in the colour of the flowers, which is much brighter, something of an orange-scarlet tint. The engraving (fig. 22) was prepared from the specimen referred to above, and represents a scape from a plant in extremely good condition. The small figure indicates the habit. It is unquestionably an elegant plant, and one that should be grown by all who admire the genus in which it is included. The figure now given is, I believe, the first published.—L. CASTLE.



#### KITCHEN GARDEN.

WHERE outdoor operations are still stopped by the weather attention should be given to such work as making labels of various sizes, also the pointing of Pea sticks, stakes for Runner Beans, &c., so as to save time later on. When the weather becomes favourable make a small sowing of Early Munich Turnip upon a warm south border, also Early Nantes Carrot in a similar position, giving a good dressing of soot before sowing, and point it in. A sowing of Radishes should be made on a border at the base of a south wall, also a small sowing of some early variety of Cabbage Lettuce, such as Early Paris Market, and White Naples or Queen Onion in a similar position. When the weather is favourable take up Jerusalem Artichokes, placing those required for use in damp sand, and make fresh plantations in good soil and an open situation, planting 12 to 15 inches asunder in rows 24 to 30 inches apart. When Seakale is taken up regularly for forcing a plantation of the smaller roots or crowns may now be made in rows 18 inches apart; and if necessary make fresh plantations of Rhubarb, which to be good should be replanted every third year in ground

deeply trenched and heavily manured, selecting strong crowns from the older roots.

**Forcing Department.**—Sow Celery in pans for early use, placing them in gentle heat, and when the plants appear keep them near the glass. Sandringham White and Leicester Red are suitable varieties. Make a sowing on a hotbed of Brussels Sprouts, Early London and Walcheren Cauliflower, and if necessary of early varieties of Cabbage. Where a bed of fermenting materials has been prepared place a frame over it and sow Cabbage and Cos Lettuce, ventilating freely after the plants appear. A good supply of fermenting leaves and dung, three parts of the former to one of the latter, should be prepared for lining hotbeds on which Radishes, Carrots, and Potatoes are growing, also to make up fresh beds for like purposes as required. Sets of Potatoes should be placed in boxes and covered with leaf soil, an early Peach house or vinery being suitable to start them into growth; and when the shoots are a couple of inches long plant on beds prepared to receive them, the soil having been previously warmed. Introduce fresh roots of Rhubarb and Seakale to the Mushroom house to maintain the succession.

#### FRUIT HOUSES.

**Peaches and Nectarines.**—When the fruit is all set in the earliest house syringing the trees must not be neglected in favourable weather to prevent insects increasing. Where the fruit is too thickly set a few of the smallest may be rubbed off, especially those at the back of the trellis. Disbudding the young shoots will need attention, but proceed cautiously, taking only a few of the strongest foreright shoots at a time, retaining a growth as near the base of the current bearing shoots as possible, and another above, or at least level with the fruit, to draw the sap to it. Fumigate carefully upon the first appearance of aphides. Allow a night temperature of 55° to 60°, 60° to 65° by day, with an advance from sun heat to 70° or 75°. Early Peach houses in frosty weather require careful attention, cold draughts giving a check to the foliage and young fruit. On clear sunny frosty days it is better to allow the temperature to rise a little than to ventilate excessively to reduce it. For inside borders some weak liquid manure will aid the fruit swelling in their first stage, but it must not be afforded trees that are too vigorous. Trees in the house started early last month are in full blossom; discontinue syringing, except to damp the borders and pathways once or twice a day, according to the weather, until the fruit is fairly set. If there be a superabundance of bloom thinning may be practised with advantage, removing blooms with two or three pistils, and those at the back or under side of the shoots, retaining the most vigorous and best placed. Continue 50° as the night temperature, 55° by day, ventilating above that degree, and allow an advance from sun heat to 65°. Leave the ventilators slightly open all night. Fertilise the blossoms every day when the pollen is in a fit state, either with a camel's-hair pencil or other suitable means. The house for affording ripe fruit about the middle of July may now be closed, damping the trees and paths in the morning and afternoon, the latter sufficiently early to have the trees fairly dry before night. In the day 50° is sufficient, advancing to 60° or 65° from sun heat with full ventilation, and 40° to 45° at night from fire heat. Continue the pruning, training, and dressing of the trees in late houses with as little delay as possible. Ventilate fully, except during frost, so as to retard the flowering, and see that there is no deficiency of moisture in the inside borders.

**Vines.**—Vines started last month will now be growing freely, and with fermenting materials in the house progress will now be rapid. Syringe the rods well three times a day until the bunches are formed, when it should be discontinued; but atmospheric moisture must be provided by frequently damping the walls and paths. Mulching is also beneficial, as the ammonia rising from it will assist the foliage and keep red spider in check. Ventilation will require great care, especially in frosty or cold windy weather. Keep the fires going every morning until a little air can be given, closing early, and allowing a rise of 5° to 10° on fine afternoons after closing. Houses where the Vines are flowering should be kept at a steady night temperature of 65°, with a rise to 70° or 75° by day, and an advance of 5° to 10° after closing. Assist fertilisation by drawing the points of the bunches to the light, shaking the Vines every day,



or dust ripe pollen over the pistils. A constant circulation of dry warm air at this stage is very beneficial. Attend to stopping, tying, and thinning in the early house. Keep up a supply of ammonia by the addition of a few fresh horse droppings, and see that inside borders are well supplied with weak tepid liquid manure. Vines in pots should never be allowed to become dry, supplying them with liquid manure if needed. Vine eyes may now be inserted in pots, pans, or squares of turf. Ripened wood only is suitable, filling the pots with friable compost, inserting the buds with a pinch of sand about half an inch beneath the surface, and plunge in a bottom heat of 80°.

#### PLANT HOUSES.

*Orchids.*—A rise of 5° in the temperature may now be given, the East Indian house being kept at 70° by day, allowing 5° more from sun heat, the night temperature being 5° to 10° lower than by day. The moisture must be proportionate to the increased temperature, admitting air in favourable weather, and so that it will become warmed before it reaches the plants, as cold currents coming in contact with the plants are very injurious. The potting of *Aërides*, *Camarotis*, *Saccolabiums*, and *Vandas* may now be proceeded with. Do not supply water for a few days prior to potting, as the old material is more easily removed from the roots than when wet. Plants that do not require shifting should have as much of the old material taken from the roots as possible and fresh supplied. The chief point in potting is to drain well. Baskets must be examined, and if any show signs of decay transfer the plants to new ones. Many *Burlingtonias*, *Dendrobiums*, *Sophranites*, &c., succeed best on blocks of wood, a little moss being placed on the blocks, and the plants fastened on with copper wire and copper tacks. The blocks must be damped thoroughly twice a day at this time of year. *Stanhopeas* that have become dry should be dipped in a tub of tepid water, so that the whole may be thoroughly moistened. *Cattleya Aclandiae*, *C. marginata*, and *C. Regnelli* should be repotted as soon as they show signs of starting into growth. They should be suspended from the roof where they can obtain a good circulation of air and have plenty of light. *Miltonias* succeed best in perforated pans suspended from the roof in the Mexican house where they can conveniently be shaded. For potting, which should be attended to when starting into growth, employ good fibrous peat with a little sphagnum.

## THE BEE-KEEPER.

### ABOUT HIVES, WHICH ARE THE BEST FOR PROFIT?

"THE battle of the hives" seems to be renewed again, to judge from the various deliverances on the subject which bee-keepers at home and abroad have recently made. Last October at a conversazione of the British Bee-keepers' Association held in the Agricultural Hall, Islington, an interesting paper was read by the Rev. E. Bartrum, M.A., Head Master of the Grammar School, Great Berkhamstead, on the Stewarton hive. After detailing cases of remarkable harvests of honey obtained in one season from these hives, reaching, in the case of a Scotch clergyman, the astonishing quantity of "445 lbs. of the parent comb," he remarks that "a hive which has secured such remarkable results must have features connected with it of unusual merit." These he proceeds to detail in order. In his opinion we find three special advantages dilated on, which I may sum up as follows:—

1, The remarkable power of expansion and contraction of these hives, and consequently the ready prevention of swarming, if this be deemed desirable.

2, The time and trouble spared in the management of this hive in comparison with other hives, making it notably the busy man's hive. In this respect Mr. Bartrum thinks it compares most favourably with the ordinary bar-framed hive.

3, The Stewarton hive winters well if only ordinary and proper care be taken.

The two particulars first mentioned alone deserve attention, because any and every hive will winter well "if only ordinary and proper care be taken." Passing over this last, I may observe that the only speciality of the Stewarton hive which seems to be

an advantage over other hives, is that a busy man may find it suit him better than another sort of hive. As for the first alleged superiority of the Stewarton, it is more than matched by the power of expansion and contraction now provided in improved bar-framed hives. This appears to have been the general sense of the meeting when Mr. Bartrum's paper came to be criticised in the discussion which followed. As for the old objections to the workability of the Stewarton, which have always deterred me from using them, they remain in full force, and they detract not a little from the benefit of the hive even to a busy man. Mr. Bartrum very fairly puts some of these objections forward. They include the difficulty of moving or removing the slides, and much time and trouble must be bestowed upon these. Another formidable objection is the unsaleableness of the large supers, and then there is the costliness of the Stewarton in its completeness to be further taken into consideration. Mr. Cowan further objected to the screws which have to be removed before an examination of the frames can be made, an operation which has to be gone through in each body-box—no easy matter when a hive is full of bees; and Mr. Cheshire pointed out the difficulty of overhauling a Stewarton to find the queen, which was often impossible.

The weakness of the whole argument in favour of the Stewarton on this occasion appears to lie in the fact of its being compared with the "ordinary" bar-framed hive. But why this? The Stewarton, being confessedly the best hive of its kind, should be compared with the best of the bar-framed hives to make the comparison of any practical value. If, indeed, the Stewarton hive could be made generally to yield honey harvests like that mentioned in the case of the Scotch clergyman before alluded to we should at once bow to its superior merit. Nobody, however, doubts that this was a very exceptional case, and that it is to be explained by something as exceptional in the management of this particular stock, or in the condition of the bees themselves, or their queen; nor can there be any reasonable doubt but that a superior bar-framed hive under like favourable circumstances would have yielded a harvest as great if not greater. See, too, how doctors differ! At the same time and place Mr. White stated that, "contrary to the experience of Mr. Bartrum, he wished to give up his Stewartons, because he found they took up too much time and gave him too much trouble!"

Leaving, then, the Stewarton hive to fight its own battle—or shall I say, to maintain its ground as best it may?—I will proceed to contribute towards the still further improved use of the bar-framed hive a few suggestions which have occurred to me as the result of my experience this last summer in its management. In his remarks upon the superiority of the bar-framed hive in course of the discussion already referred to, Mr. Cheshire put his finger upon one of its weakest points, I mean in the ordinary use of the bar-framed hive, without opportunity for its expansion or contraction. But it is not only true that "a principal desideratum in any form of hive lies in its expansibility and contractibility." Something is wanted in our method of using this improved capability of the hive. What that is, is suggested by him where he says that "the great secret of success is to increase the brood nest gradually, and to obtain a large quantity of bees before the beginning of the honey harvest." Now a large quantity of bees can be obtained in a large bar-framed hive without the gradual increase of the brood nest. We have proved this abundantly here. Where I see a principal advantage in these improved bar-framed hives is in the facility afforded for contraction of the brood nest at the proper time far more than in its extension. Hitherto this has been supposed to be limited to autumn use in order to prepare the bees for comfortable wintering. True, Mr. Cheshire is aware of the advantage I speak of, and he notices it too in the same discussion where he says, "Give the queen room enough; but short of this, all hives should be contracted as much as possible when supers are put on—that is to say, when the yield of honey is at its height." So far so good. But I am not sure that his following advice is not open to improvement. He adds that "all combs containing no brood should be removed." On the contrary my advice would be, Leave all such combs, but remove the brood combs, all save those which contain the largest quantity of brood in open cells and eggs, but this only at the crisis of the honey-gathering season.

What to do with the sealed brood combs I will speak of in a future paper. I must also reserve for another occasion my reasons for suggesting a different treatment to that recommended by Mr. Cheshire. I will content myself with saying here that my treatment of all the strongest hives in our apiaries, so far as it is diverse from his, aims at stopping altogether the queen's functions in the hive, and compelling the bees to devote their whole attention to honey-gathering. This can be done in several ways, but I will deal first with that which Mr. Cheshire evidently

has in view—namely, the production of the largest quantity of honey in supers.—B. & W.

### PACKING BEES FOR LONG VOYAGES.

DO THEY NEED A DAMP ATMOSPHERE?

MR. M. H. MATTHEWS, in the *Journal* of January 20th, asks me to give some explanation of the utility of water as supplied to bees during their transit to New Zealand, and kindly adds some quotations from a journal of our antipodean colony, in reference to which, beside doing my best to answer his theory, I desire to make a remark or two, as the questions involved touch the whole economy of the hive more thoroughly than at first sight appears.

The device of wet sponge, by the assistance of which the bees were at length carried successfully to New Zealand, is not new, as the southern paper quoted states, which may be seen by referring to the *Journal of Horticulture* of June 3rd, where in an article entitled "Transporting Bees to India," I thus explained it—"During 1878 and 1879 I sent two stocks and two nuclei *via* the Red Sea to Bombay; the bees after their unshipment had a further journey into the interior, entailing an incarceration of nearly forty days before they reached their then owner, an Indian gentleman of distinction. The nuclei carried each, four of my half Woodbury frames, as used by me formerly for queen-raising. These were well stored with sugar, while the backs of the boxes contained pouches cut off from the bees by perforated zinc, and into these pouches sponges filled with water were occasionally put during the voyage. Perforated zinc covered the frames above, while the boxes were made 2 inches deeper than accommodation of the frame required. No other precautions were taken except that the combs were well fixed and the frames secured against lateral sway. Both nuclei arrived in capital condition."

The southern editor mistakes altogether the use of the sponge when he says, "it appears to have secured that cool and moist atmosphere necessary for bees." The water is really required for drinking. When honey is first gathered it is perfectly limpid, and then contains so much water that it is both food and drink, but after it has been some time stored the high temperature evaporates much of its fluid, and the inspissated mass is ready for sealing over. When bees are obtaining abundance of fresh nectar they do not require water, but it becomes a necessity if they are forced to feed on evaporated honey. During very cold weather, however, when they could not gather it, by a most interesting adaptation they do not need it; for their large quantities of honey are consumed to generate heat, and the carbon of the saccharine matter undergoes combustion, or more properly oxidation, the residue (consisting of hydrogen and oxygen) being freed in the form of water; so that actually the dry sugar of the honey becomes a water-former, while in addition the quantum of aqueous matter which even evaporated honey contains is put at the disposal of the bees. This will explain why some say bees need water, and others strongly assert the contrary.

I quite agree with Mr. Matthews that the New Zealanders have seen the advantages of Ligurians through a magnifying glass. That they are valuable bees we all are agreed, but after much painstaking comparison I do not believe that they raise grubs more uninterruptedly during the twelve months than do the blacks, although on the whole the former are without doubt more prolific than the latter. Bees will occasionally, if well cared for, breed here during the very severest weather. A few months since I gave an instance in the *Journal* of evidences of egg-laying and brood-raising being continued in most of my hives both by blacks and Ligurians on December 19th and 20th of 1879, most intensely bitter days. And further in their favour Ligurians are when pure very generally of mild temper, while their greater beauty increases the pleasure of possessing them, but they persistently cross, and so will I fear doom to disappointment the expressed hope that the yellow-banded will soon become as common as the black variety, unless indeed the yellow blood be kept up by continuous new importations. But though this hope may fail the crossing will greatly improve the stock, intensifying it in all directions, not excluding unhappily its disposition to sting. In a big apiary no doubt any special characteristic may be increased or decreased as desired, even in the absence of controlled fertilisation by continually raising queen cells from the eggs of that queen, stocks of which seem to present in a most marked degree the features we are seeking. I make it a rule to get rid of any queen whose progeny are disagreeably ferocious, notwithstanding the fact that they may be excellent in some other points.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

### TRADE CATALOGUES RECEIVED.

Kelway & Son, Langport, Somerset.—*Manual for 1881 (Illustrated).*

William Fell & Co., Hexham, Northumberland.—*Spring Seed List, 1881.*

The General Horticultural Company (John Wills), Limited.—*Catalogue of Flower and Vegetable Seeds, Fruit Trees, and Roses.*

John Cattell, Westerham, Kent.—*Catalogue of Flower and Vegetable Seeds.*

C. Pocock, Wincanton, Somerset.—*Catalogue of Flower and Vegetable Seeds.*

S. Dixon & Co., 34, Moorgate Street, and at Hackney.—*Catalogue of Flower and Vegetable Seeds.*

William Rumsey, Waltham Cross.—*Catalogue of Flower and Vegetable Seeds.*

Wm. Cutbush & Son.—*Catalogues of Flower and Vegetable Seeds, and Stove and Greenhouse Plants.*

John George Hill, Yeovil.—*Catalogue of Flower and Vegetable Seeds.*

Robert H. Poynter, Castle Gate, Taunton.—*Catalogue of Flower and Vegetable Seeds.*

J. T. Rofe, Cecil Road, New Town, Enfield.—*Catalogue of Flower and Vegetable Seeds.*

W. P. Laird & Sinclair, Dundee.—*Catalogue of Vegetable and Flower Seeds.*

Kerr & Fotheringham, Dumfries.—*General Catalogue.*



**Books (A Learner).**—The following would no doubt meet your requirements:—"The Greenhouse Manual," published at this office, price 9d., post free, 10d.; and Mr. B. S. Williams' two volumes on "Stove and Greenhouse Flowering and Fine-foliaged Plants," published at the Victoria and Paradise Nurseries, price 5s., or post free 5s. 5d. each. (E. S. R.).—We do not know of any book that will exactly meet your requirements; the best probably is Kemp's "How to Lay Out a Garden," published by Messrs. Bradbury Agnew, & Co., Bouverie Street, London.

**Liliums from Seed (Devonian).**—The time that elapses between the sowing of the seed and the flowering of the plants varies somewhat in different species, and is governed also to some extent by the mode of culture adopted. You do not state the species you are desirous of raising from seed; but we shall shortly publish a record of the experience of a cultivator who has raised and flowered plants of *L. auratum* from seed, and who has seedlings of some other species that are approaching the flowering stage.

**Climbers for Trellis (Reader).**—As you require annuals for covering the space quickly and temporarily, we think you can do better than send to a seedsman for packets of the best varieties of *Tropaeolum Lobbianum*, *T. peregrinum* (the Canary Creeper) would also be suitable, as would the varieties of *Convolvulus major*. The *Tropaeolums* you name are not annuals, and would not be likely to cover the space so quickly as you desire. The *Tacsonias* are readily raised from seed and grow quickly, but they do not flower freely except from cuttings, nor are they annuals; neither is *Eccremocarpus scaber*, which flowers from seed the first year if the plants are raised early. Such annuals as those just named would probably answer your purpose best, also Sweet Peas if the house is a light one.

**Bulbs Frozen (An Alarmed Contributor).**—You need be under no apprehension regarding the failure of your Hyacinth beds, even if the bulbs were only covered 3 inches deep in November. No doubt, as you suppose, the frost penetrated to a greater depth than that; still we are confident, if you examine the bulbs carefully, you will find them firm with healthy roots, and the crown growth fresh and satisfactory. Bulbs planted very late, and which do not emit roots before winter, are much more liable to injury than those that were established before the occurrence of severe weather by having been planted at the right time. You must not, however, dig up the bulbs to examine them. If you partially clear the soil from around one without in the slightest degree injuring its roots, we feel sure you will find it healthy, and you may take it as a type of the rest, and wait patiently for your "feast of flowers."

**Vines in Pots (A. Lawson).**—As the canes are no thicker than an "ordinary penny pencil," you had better cut them down at once to a good bud just above the surface of the soil, and insure a strong fruiting cane for another year. If you attempt forcing them now you will obtain no fruit from them either this year or next. Keep them cool for two or three weeks after cutting them down, then place them in a very light position in a house having a minimum temperature of 50°, increasing the heat as the growth advances, and shifting into larger pots when the shoots are a few inches in length, and securely affixed to stakes, watering the Vines very carefully after they have been repotted. They will then form strong canes early in the season, and be matured before late autumn, and be in good condition for bearing next year.

**Climbers in Boxes (H. F. Foy).**—The very strong growth made by your *Habrothamnus* and *Tacsonia* indicates that the roots may have passed through the bottom of the box into the soil below; in that case the plants cannot be removed without receiving a considerable check, but if all the roots are within the box we think you may divide the plants without hindering them from flowering this year. Assuming that there is some space between the two plants, we should cut the soil and roots with a sharp spade or other more suitable implement, and remove the plants with the squares of soil adhering to their roots, and place them in the desired positions. As they produce roots freely they would sooner recover from the check received by removal than they would were you to try and preserve all the roots of each plant by disentangling them and separating the soil from them, as you must do in the process. Water the plants sufficiently, yet judiciously, after removal, and syringe them occasionally if the weather is bright and warm. This advice is given on the assumption that the box is crowded with roots.



**Frosted Potatoes** (*Subscriber*).—If the tubers remain sound and firm they will no doubt grow, but if they have turned soft their vitality is destroyed. Any which you are doubtful about should be placed in leaf soil in a rather warm position, when they will soon show signs of growth if the frost has not destroyed them; they must, however, be kept perfectly cool so long as they remain in a frosted state, as the thaw cannot be too slow.

**Camellias** (*Hopewille*).—The Camellias you name may be briefly described as follows:—Martha, flower large, finely imbricated, and pure white; Principessa Clotilde, handsome flower banded with white and barred with red; Auguste Delfosse, very symmetrical blooms, bright reddish orange, few stripes; Marchioness of Exeter, a very beautiful variety, with soft peach-coloured blooms. Incarnata is, we think, a striped variety, and the other we do not know.

**Glass-Heating** (*C. B.*).—We are obliged by your letter. You do not, however, give the name of the firm who heated the house in the imperfect manner indicated. An estimate should be had for the erection of structures, and it can be accepted or not. As to the glass, unless the vendor delivered it himself you had in law no claim against him. If it was sent by rail, the railway company become the bailee, and you could have recovered damages from them, not from the consigner, who was not "answerable for breakages," even if he had made no such notification as that quoted; indeed in a case of this kind these words were quite superfluous, assuming that the goods were sent by rail or some other common carrier.

**Roses for Exhibition** (*J. B.*).—To obtain Rose blooms of exhibition quality earlier than the "general run" of the rest of the collection, much may be done by early pruning and growing them in a favoured position, but the following will be found more precocious than some others:—Madame Victor Verdier, Charles Lefebvre, Annie Laxton, Docteur Andry, Dupuy Jamain, Général Jacqueminot, Mdle. Engénie Verdier, Marquise de Castellane, Royal Standard, Sénateur Vaisse, Mdle. Marie Rady, and Lord Macaulay. Late bloomers are Star of Waltham, Emilie Hausberg, Baronne de Rothschild, Duc de Rohan, Duchesse de Vallombrosa, Madame Charles Wood, Madame Hippolyte Jamain, François Michelin, Reine du Midi, Sir Garnet Wolseley, Reynolds Hole, and Devienne Lamy. Such information as you need respecting the "classes for Cheshunt-raised Roses and similar classes," can only be obtained from the Secretaries of the National Rose Society. If you write to the Rev. H. H. D'Omhain, Westwell Vicarage, Ashford, Kent; or to Edward Mawley, Esq., Addiscombe Road, Croydon; either of them will send you a schedule of prizes when ready for distribution.

**Roman Villa at Brading** (*C. Waring*).—The discovery of the remains of this villa in the Isle of Wight has occasioned many inquiries, which are all answered in the following notes.—Statues of the tutelary deities were always placed at the garden gates which opened upon a parterre. The walks were edged with Box, or with a dwarf Conifer. The lawns had evergreen enclosures, and some of the evergreens were clipped into the shape of animals, initial letters of the owner and gardener. A very full description of a Roman garden is given by Mr. Moule in his "Essay on the Roman Villas."

**Potato for Garden Culture** (*An Old Subscriber*).—In reply to your query for the "best early, dwarf-growing, prolific, disease-resisting, general crop Potato for garden planting," we doubt if any variety better combines all those qualities than Myatt's Prolific Ashleaf, Rivers' Royal Ashleaf, or Gloucestershire Kidney, for all these, if raised from true stocks, are identical. That it is dwarf and prolific is well known, and it is generally ready for digging before the disease occurs; at least this is our experience. We find also that the tubers are as good in quality now as they were in the autumn, and they will continue good for a long time. We have for some years relied on this variety for our early and general crop under garden culture, and it has never failed to answer our expectations both by its yield and table quality. Your mode of wide planting is good, but with this variety the rows may be 6 inches closer than you name, and the other crops between the rows will succeed equally well. The time and depth of planting should be governed by the state of the seed and character of the ground. As a rule early and rather deep planting is the best in light, dry, and sandy soils, later and shallow planting in strong loam; but on this point you cannot do better than continue the plan that has proved successful.

**Potting Begonias** (*C. Diamond*).—We presume you mean the tuberous varieties. It is not too early to pot them provided you have a suitable position for starting them into growth, such as a heated pit or propagating house. They should be potted in a compost of equal parts of loam, peat, and leaf soil, with a free admixture of silver sand, each tuber being surrounded with sand and placed in the centre of a small pot. If the pots are plunged in cocoa-nut fibre refuse or sawdust of a temperature of 75° to 80°, it will be of great assistance to them, as if the plunging material is kept moist it will not be necessary to water the soil in the pots—a point of some importance, since, unless the greatest possible care is exercised in applying water to the tubers, a number of them will decay. The soil should be moderately moist when used, and the temperature of the house kept at about 70°. When growth commences raise the pots and place them on the bed for a few days, then remove them to a shelf near the glass, and as soon as the roots can be seen protruding through the drainage shift the plants into larger pots, and grow them in a light position in a house having a minimum temperature of about 60°. When artificial heat cannot be afforded to the extent and in the manner indicated, the tubers must not be potted so soon. If they have to be started in an ordinary greenhouse, the middle of April will be soon enough for potting; if, however, they are established in pots in which they were grown last year, it will be a safe plan to allow them to start in these pots, shaking them out carefully and repotting when the growth is half an inch long. A hothead, such as a Cucumber frame, will then be of considerable assistance in the early stages of growth, but they must not remain in such a frame to be drawn up weakly.

**Repotting Adiantums** (*Idem*).—The plants should not be potted until they have commenced producing young fronds freely. This is usually during February or early March, according to the condition of the plants and the temperature in which they are placed. Suitable soil is light turfy loam, peat, and leaf soil, in equal parts, with a plentiful admixture of broken charcoal and silver sand. This is good for young plants, which also will grow freely in peat alone; but for strong healthy plants a stronger compost is preferable. We never had them so fine as in two-thirds of rough turfy loam and one-third of the refuse of a Mushroom bed—old horse manure—with plenty of broken charcoal, and a handful of soot to a gallon of soil; but for young and delicate plants this compost is too strong and rich.

**Cucumbers and Melons** (*Melon*).—Such a house as the one represented in the sketch you have enclosed is a very good one for the purpose provided you have sufficient top heat, which you do not mention. The provision for bottom heat is ample; indeed we should prefer to have some sliding shutters in

the pit wall next the pipes, so that you could regulate the bottom heat as desired. You had better place a few inches of clinkers or other rubble on the floor of the pit, and cover them with turves or a thin layer of litter or leaves before placing in the soil. In the first instance this need only be spread about 3 inches deep, and at intervals of 2 or 3 feet form hillocks, each containing half a bushel or a little more of soil, in which the Cucumbers and Melons are to be planted. The first layer may be of ordinary garden soil, the mounds being of turfy loam with a fourth of decayed manure, and wood ashes if you have them. As the roots protrude through the hillocks they must be covered with warmed soil an inch or two at a time as often as is requisite. The soil for the Cucumbers as they attain strength should be rough, open, and rich, that for the Melons heavier, less rich, and pressed down very firmly. By adding soil as directed throughout the season, it is surprising how little is required to produce heavier crops with the aid of liquid manure and otherwise good culture. One of the finest crops of Cucumbers we ever had was produced from soil only a foot thick, but it was good soil, and more would have been required of a less sound and fertile compost. The minimum temperature of the house should be 70° for raising the seedlings. If you have a frame in the house, or handglasses placed on the warmest part of the bed, you will raise the plants more readily, and can strike cuttings much more freely than in the open bed. Cucumbers and Melons are usually ready for planting out a month after the seed is sown. Great care is needed in ventilation and watering, cold currents of air and cold water being fatal to the plants. For further details of culture see past issues under the heading of "Work for the Week," and the subject will be alluded to from time to time in future issues of this Journal.

**"Butter Nuts"** (*F. R.*).—The nuts you have purchased under the above name are produced by a South American tree, known by botanists as *Caryocar nuciferum*, though several other species also bear edible nuts. The tree which produces the Souari or Butter Nuts attains the height of 100 feet, the trunks rising like columns without branches to the height of 80 feet. Though it is a native of the South American provinces of Essequibo and Berbice it has been introduced to some of the West Indian Islands, and it has received especial attention in St. Vincent. The kernel is white, soft, and fleshy, with the mild flavour of a Sweet Almond, but much softer in texture, melting like butter, and is enclosed in an exceedingly hard shell. The wood of *C. nuciferum* is also employed in ship-building, and an oil is extracted from the nuts. Owing to the great height of the tree the nuts are only procured with considerable difficulty, which is partially the cause of their being seldom seen in this country.

**Wooden Hive** (*Henry F. Fox*).—Your larger sketch gives an ancestor of the Stewarton hive and now quite out of date. The smaller sketch is no doubt an "adapting board," the hinged part to be turned back at the time that glasses are placed over the six holes. Both belong to a past school of bee-keeping, and we should advise in the interests of economy that neither be used.

#### COVENT GARDEN MARKET.—FEBRUARY 2.

BUSINESS remains quiet, with no alteration to quote with the exception of Cucumbers, which have experienced a great fall.

FRUIT.							
	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6		Melons .....	each	0 0 to 0 0	
Apricots.....	box	0 0 0 0		Nectarines....	dozen	0 0 0 0	
Cherries.....	½ lb.	0 0 0 0		Oranges .....	½ 100	0 0 0 0	
Chestnuts.....	bushel	12 0 16 0		Peaches .....	dozen	0 0 0 0	
Figs.....	dozen	0 0 0 0		Pears, kitchen ..	dozen	2 0 3 0	
Filberts.....	½ lb.	0 0 0 0		dessert .....	dozen	2 0 4 0	
Cobs.....	½ lb.	2 0 0 0		Pine Apples ....	½ lb.	1 0 2 0	
Gooseberries ..	½ sieve	0 0 0 0		Plums .....	½ sieve	0 0 0 0	
Grapes .....	½ lb.	3 0 8 0		Walnuts .....	bushel	0 0 0 0	
Lemons.....	½ case	12 0 18 0		ditto .....	½ 100	0 0 0 0	
VEGETABLES.							
	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0		Mushrooms .....	punnet	1 0 to 1 6	
Asparagus.....	bundle	0 0 0 0		Mustard & Cress ..	punnet	0 2 0 3	
Beans, Kidney ....	½ 100	1 0 1 6		Onions.....	bushel	3 6 5 0	
Beet, Red.....	dozen	1 0 2 0		Pickling .....	quart	0 0 0 0	
Broccoli.....	bundle	0 9 1 6		Parsley..... doz. bunches		6 0 0 0	
Brussels Sprouts..	½ sieve	0 9 1 3		Parsnips.....	dozen	1 0 2 0	
Cabbage .....	dozen	0 6 1 0		Peas .....	quart	0 0 0 0	
Carrots.....	bunch	0 4 0 6		Potatoes.....	bushel	3 9 4 0	
Capsicums.....	½ 100	1 6 2 0		Kidney.....	bushel	4 0 4 6	
Cauliflowers.....	dozen	0 0 3 6		Radishes.... doz. bunches		1 6 2 0	
Celery .....	bundle	1 6 2 0		Rhubarb.....	bundle	0 4 0 6	
Coleworts..... doz. bunches		2 0 4 0		Salsify.....	bundle	1 0 0 0	
Cucumbers.....	each	0 6 0 9		Scorzonera .....	bundle	1 6 0 0	
Endive.....	dozen	1 0 2 0		Seakale .....	basket	3 0 3 0	
Fennel.....	bunch	0 3 0 0		Shallots .....	½ lb.	0 3 0 8	
Garlic .....	½ lb.	0 6 0 0		Spinach.....	bushel	3 0 0 0	
Herbs .....	bunch	0 2 0 0		Turnips.....	bunch	0 4 6 0	
Leeks.....	bunch	0 3 0 4		Vegetable Marrows	each	0 0 0 0	



#### POULTRY AND PIGEON CHRONICLE.

#### WEEDS OF THE FARM, AND HOW TO DESTROY THEM.

WEEDS of the farm are very numerous, and their individual names are also various in certain districts. We hope, however, to be able to describe most of them under their provincial names, so that, together with their habits of growth, colour, &c., they may be easily recognised by the home farmers in their respective localities. It must be admitted that it is necessary and desirable



in the interest of the occupiers of land and its general management, whether of arable or pasture and park lands, that the best methods of destroying weeds, and the injury they do to the corn and cattle of the farm, should be well defined and understood. To keep land free and clean from weeds is the broad basis of all good farming; but it must not be imagined that weeds can be destroyed in the same manner that we dispose of hedgerows—by grubbing and removal, because we find that practically the soil is charged with seeds of weeds, for we have seen various weeds spring up on soil removed from wells soon after its exposure to the air. We also recognise this matter in our ordinary modes of cultivation, for having destroyed the weeds down to the depth of the ploughing we no sooner bring up fresh soil than we have to do battle with a new army of them. We should also endeavour to cultivate the land as in a great measure to destroy those which exist only under certain conditions of the soil. For instance, on soils deficient in chalk and lime weeds often overrun all the crops of either corn or roots, especially in sandy soils, so that the prevention of their growth is the first point to be considered. It is in such a case clear that their prevention of growth is easier than their destruction by the ordinary means in use for that purpose—namely, the horse hoe, hand hoe, and the weeding hook, as well as the lately improved machinery.

We commence with a few observations on that destructive weed called Couch or Twitch Grass, and with which most individuals connected with agriculture have from time to time become too well acquainted. Although we have been told by eminent men who have explored the antipodes that there are soils and countries free from this pest, yet wherever a white man puts his foot Couch Grass or its kindred weeds will immediately show themselves. There are several species of Couch Grass, the two principal being the deep white-rooted and the surface-rooting or tendril-like Grass, which is frequently called Water Grass. To eradicate or keep down these weeds we must be on the alert at all times, and use all means within our reach. If there be one way better than another it is by employing surplus labour during the winter months to fork them out from the root crops. Unless this plan is resorted to, the land in many localities, notwithstanding whatever may be done by way of autumn cultivation or cleaning in the spring, will always prove a serious drawback, and the expense of forking-out the bunches of white-rooted Grass will be far less than leaving the land to be cleaned in the ordinary way in after years, quite irrespective of the delays of seed time.

We now pass to the weeds called Charlock and Wild Mustard; in fact, we have a wild Radish with a pale blue flower, of the same habit of growth and propagation peculiar to some soils. These are unwelcome weeds at all times, but especially to those who occupy upland farms on the chalk hills and on the stone brash formation. These weeds are very difficult to eradicate, as the seed lays dormant for a long period; but as soon as the land is brought into good tilth vegetation commences. When they appear in the root crop we can do battle with them, where the roots are drilled by the horse and hand hoe with good effect, especially if the roots are grown on the stretch. When these weeds take possession of young Barley or Oats they become very troublesome; and some thirty-six years ago Mr. Baker, who wrote the prize essay on the farming of Essex for the Royal Agricultural Society of England, alluded to the impossibility of destroying Charlock in the Barley crop. He, we suppose, wishing to make a virtue of a necessity, advised its being allowed to stand and seed with the Barley until harvest, and that the best malting samples of Barley frequently occurred when held up by Charlock. It is, however, now, we are pleased to say, perfectly easy to destroy these weeds by the new implement called the "weed eradicator," drawn by one horse, and the result was explained under the heading of "Agricultural Implements" in this Journal on page 36.

Wire weeds, of which there are at least two varieties—one growing with a small and short-pointed leaf and fine branches, but not reaching very far; the other having a larger and longer leaf, with very stout strong stems, and extending several feet; in fact, we once pulled a single root growing in some Beans, which was a perfect mat of stems 7 feet across, and weighed 9 lbs. These are usually most prevalent upon land requiring chalk; it is therefore advisable to chalk or lime the land, in order to prevent the necessity of waging a constant war against them on the land under root cultivation by horse and hand hoeing. They are, however, far more troublesome and damaging in the Barley crop than in any other, for where they prevail and the land is seeded with Clover in the Barley, the Clover is frequently overpowered and completely destroyed, being at the same time detrimental to the crop of Barley. When the Barley is drilled at 9 or 10 inches apart the land may be horse-hoed or hand-hoed should the weather be favourable, and the Clover seeds sown immediately afterwards. Wire weeds,

unfortunately, run along on the surface of the land, and in consequence the "weed eradicator" cannot touch them; they are therefore more difficult to destroy than Charlock, which grows erect and blossoms quickly. This leaves the home farmer no alternative but to apply chalk or lime, or run the risk of unsuccessfully attacking them with the hoe.

Another very difficult weed upon sandy soils is that commonly called "Bunting." It is a very small plant with a very minute white flower, and unless it is destroyed in the early stages of growth it will impoverish the soil and impede the growth of vegetable or cereal crops, and frequently destroys them entirely, especially if the season is adverse for hoeing, as it seeds very quickly. As a preventive is better than any labour for its destruction this can be effectually done by a liberal dressing of chalk or lime, after which, if a few plants appear, they are easily destroyed by the ordinary process of hoeing.

Chickweed is another enemy of the farmer, especially upon some soils, where it almost stops cultivation, particularly on fenlands in different counties. It is, however, well known to cultivators of gravel and dry loamy soils, and it is one of the most difficult to destroy by ordinary hoeings, as the slightest shower will set the plants growing again. The only time when it is likely to yield and die after the hoe is when the plants are in the second leaf, and even in that case if showery weather continues they cannot be destroyed.

Docks are also troublesome, and without careful management and constant removal from the soil will propagate in the most extraordinary manner. This weed is said to be indigenous to some soils, but we contend that the way it is often found to make its appearance is in consequence of seed being brought up from the subsoil after deeper cultivation. We have noticed on clay soils in Buckinghamshire and various other counties that in very dry weather these tenacious soils crack open, leaving wide fissures; and at the harvest time in the act of cutting the crops, if the Docks have been left, the seeds fall out into these openings, so that on the return of moist weather they close in upon the Dock seeds, which in consequence remain at various depths without vegetating, until by tillage they become exposed to the sun and air. We have noticed that this weed is often very carelessly left to seed at the sides of the widest water-carriers in the irrigated meadows, and after dropping their seeds the next flooding of the meadows distributes them far and wide.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—The work to be done by the horses will depend greatly upon the weather. When the land is dry enough chalk carting and spreading may be done with advantage, about 18 or 20 yards per acre being sufficient; also, carting yard, box, or town dung may be done upon the Clovers. In the other case, should flooding rains occur, the carting of roadside earth may be done, also the carting of chalk from the pit to a heap in the field where it will be required to be laid out at a future time. It must be remembered that the best and softest chalk should be selected, because it will always act upon the soil a year or two quicker than the hard, rubbly, and stone-like chalk. This is the time when the home farmer if he has roots or vegetables for sale can dispose of them to the best advantage; for instance, a salesman advertises that he requires to purchase 100 tons of red Carrots, and as these are frequently worth from 50s. to 60s. per ton at the nearest railway station such a sale would make a favourable item on the farm balance sheet. This only makes our advice good on the growth of such roots and vegetables as may be not only fit for use upon the farm in feeding cattle, but ready for sale as food for the people in times of scarcity. The matter has been recently alluded to by a farmer who had grown Cabbages and sent them to the London market, for which he had but little return in money, and he proceeds to caution his brother farmers as to the bad policy of growing roots or vegetables upon the farm for sale. This farmer erred by sending his vegetables to market at a time when they were worth but little, whereas if consumed upon the farm they always maintain a value easily reckoned. Besides, the farmer has the advantage, if he used it, over the market gardener, inasmuch that he can always consume his green and root crops without loss upon the farm; but not so the market gardener, because he grows his vegetables for sale only, and whether cheap or dear he has no other mode of disposal of his produce, thus showing that the home farmer, where so situated as to be near towns or railway stations, is in a better position to cultivate root and vegetable crops than the market gardener.

We have always recommended that horses employed in the tillage of the farm should in the winter months receive a moderate allowance of roots as part of their daily food, for in our own practice we found many years ago that to keep horses entirely upon dry food during winter and early spring impairs their constitution, weakens their muscular power, and often shortens their lives. The best food for

farm horses at this time of year as a weekly allowance is 1 bushel of Oats, 1 bushel of Maize, from 70 to 80 lbs. of roots either pulped or grated and mixed with sweet Oat straw chaff, and when the spring work comes on hay chaff, either of Clover or Saintfoin. Another important point in horse management is never to allow them to drink at either pond or trough, for the quantity of water they take cannot then be regulated. In our practice we always made the teamsmen carry them water in a bucket in the stables. In this way they are sure never to have too much; besides which, it is evident they do not require so much to drink when they receive roots in winter and green fodder in the summer. When horses in summer come in from severe field labour in hot weather they are very apt to drink too much if allowed to drink at a pond, and this is frequently the cause of broken wind; but we fear it is seldom considered so by either farmers or teamsmen. Farm horses are very subject to what is termed grass humour, indicated by severe swelling of the legs, particularly the hind legs and thighs, and this complaint is generally promoted if not induced by a sudden change of food from a long continuance of dry food only to that of gross and succulent green fodder. The chance of their suffering from this humour is, however, greatly diminished by the feeding with roots throughout the winter and spring, the best root food for horses being Carrots first, then Swedes, and Mangold as the spring advances. An odd horse or horses upon the farm, especially if they are strong and active, are as essential as any other horses, or more so. Mules are frequently used for odd work if large upstanding animals can be obtained, as they are not subject to the ordinary complaints of farm horses, and they are particularly handy for hoeing the root crops and all light work on the farm.

**Hand Labour.**—Spreading and breaking chalk, spreading dung on the Clovers, will now be required where the weather has permitted its being laid out. Farm roads should now be kept in shape by lowering the water tables, and then gravel will seldom be required upon private or roads leading from field to field. The lambing folds will require constant littering, but more especially it is requisite to enable the water to escape freely by cutting trenches on either side; they will, however, require but little attention in this way if they have been made on slightly sloping land. It is extremely desirable that water should escape freely, for the sheep are still very subject to lameness and foot rot if allowed to lie on wet ground or sodden littered folds. Some of the forwardest of the male lambs will soon be old enough to be castrated. This is best done when they are about a month old, and we prefer the cutting and searing plan to the old-fashioned system when we used to draw without searing at about a week old. It is found that the first-named plan is best, because the animals prove, either for fattening or for stock, more fleshy and fuller over the back and neck as well as under on the thighs and flank. These matters are now of more consequence than ever.

### VARIETIES.

**THE LIVERPOOL POULTRY SHOW.**—We often hear of poultry shows in large towns completely failing to attract the general public. Such does not seem to have been the case at Liverpool. In spite of intense cold during the first day, and rain and drizzle the second, the poultry show held there last week was visited by near four thousand people.

**POULTRY AND THE FROST.**—On the 17th ult., at 8 A.M., a thermometer outside a south-west window of my house registered 28° or 29° below freezing, and one to the north was at zero. This is most unusual cold for the Thames Valley. Eggs were cracked in the nests; and my hens, which had laid well up to that date, have all ceased laying, though warmly housed and well fed.—T. P. F.

**"THE ILLUSTRATED BOOK OF PIGEONS"** (Cassell, Petter, Galpin, & Co.).—We have received the first number of the new issue of this, which is now the standard work upon Pigeons. It is being republished in twenty-five shilling parts, and with the exception of some few corrections of misprints, &c., will, we believe, be precisely similar to the first issue. The illustrations in this part represent Antwerps and a Black Carrier, and are alone worth the money charged for the part.

**BIRMINGHAM DAIRY SHOW.**—At the last meeting of the Prize List Committee the days on which the Show should be held were fixed for Tuesday, Wednesday, Thursday, and Friday, June 7th, 8th, 9th, and 10th. The prize list was settled subject to confirmation at the general meeting on February 10th, and is on a very liberal scale. The cattle classes comprise:—Shorthorns eligible for herd book, Shorthorns ineligible, Ayrshires, Channel Islands, other breeds (pure and crosses). There will be numerous prizes for cheese, with separate classes for Stilton, Cheshire, Cheddar, Derby, Leicester, cream or soft cheese; besides the foreign varieties, America, Gorgonzola, Gruyère, &c., and champion prizes. Butter (fresh and cured),

British, Irish, and foreign; eggs, incubators, and poultry-feeding appliances, will all be recognised; as also bee hives and honey. A special feature will be the competition in cheese and butter-making appliances, milk vans, cans, purifiers, &c. The poultry prizes will include all the principal breeds kept for farm use, excluding the fancy varieties, and numerous prizes are to be offered for dressed fowls, chickens, and Ducks. Most of the premiums are open to general competition, but some classes are confined to the county of Warwick.

**SELECTING STOCK.**—"One of the greatest faults in selecting stock is that of large bones. A great bone in cows, pigs, or sheep is a great evil. It is an index to coarseness everywhere, and often the index, too, of a bad constitution. Size and strength are not identical in living tissues and structures. The small bone of the gazelle and the chamois, supporting them in dashing leaps from crag to crag, are natural illustrations of how strength may be condensed in the small bone. The large bones are full of cells—are porous, so to speak—and bear about the same relation to the small bone as the branch of the pithy Alder tree does to the dense and compact stem of the Oak."—(*Prairie Farmer*.)

**"CASSELL'S COOKERY BOOK."**—We have received the first part of the third issue of this work, and there are twelve other parts to follow. It is a cheap and excellent work, and it well deserves the success it has attained. It combines quality with quantity, and is worthy of a place in every home.

**THE IRISH FARMERS' GAZETTE.**—Mr. James Macdonald, formerly of the *Scotsman*, has been appointed to succeed the late Mr. R. O. Pringle as Editor of the above paper. Mr. Macdonald has on four different occasions carried off the Highland and Agricultural Society's prize of £30 for an essay on the agriculture of a specified county—viz., Caithness in 1874, Fife 1875, Ross and Cromarty 1876, and Sutherland 1879. He also received a gold medal from the Highland Society for a short essay on "The Agricultural Colleges of the United States and Canada, with reference to the Introduction of Agricultural Teaching into Scotland." In 1878 Mr. Macdonald was commissioned (along with his brother) by the Royal Agricultural Society of England to draw up a report for the Journal of that Society on "The Agricultural Features of the Paris Exhibition;" and for this report the two brothers received a premium of £150. Mr. Macdonald has also won the prize of £30 offered by the Highland and Agricultural Society of Scotland for the best essay on the agriculture of the counties of Forfar and Kincardine, making the fifth of these prizes since 1874. These honours afford sufficient evidence of the capability of this gentleman for discharging the important duties he has undertaken.



### FAMOUS POULTRY YARDS.

GRASSENDALE PRIORY (R. E. HORSFALL, ESQ.)

THERE are famous poultry yards which are known rather for quality than for the number of their tenants. Such is that of Grassendale Priory. All fanciers who frequented poultry shows a few years ago, or even casually looked over prize lists, must remember the invincible Light Brahma cock, "Sam" by name, the most perfect specimen of his race we have ever seen—champion in one season at the Crystal Palace, Birmingham, and Bristol as the best bird in the whole show. Grassendale Priory was his birthplace and home, and there live his descendants, for Mr. Horsfall is faithful to his one favourite variety, and breeds it really scientifically. There is much practical use in the description of such a yard as this. We have tried to picture establishments in which almost countless birds are reared for use and amusement, and roam over parks and woods; but arrangements so perfect as those at Grassendale for the cultivation of one breed we have never seen; and what makes them the more interesting is they are the gradual result of much thought, experience, and intelligence. Many of the houses Mr. Horsfall has made himself, and they are not like some of the so-called "model" establishments which rise on an unlimited carpenter's order, and



never fulfil well the purpose for which they are destined. We must not, however, generalise, but go through the yards in detail.

From gardens and hothouses innumerable, the description of which might form a charming chapter in other columns of this Journal, we come to the first cluster of runs. A large grass plot surrounded by trees and hedges has been divided into four pretty green yards. Privet hedges are planted in them against the fencing, which serve at once for ornament and shelter to the birds. Each yard has its house and dusting shed, and what strikes us specially in all the houses is their plain and substantial make, every one having a perfectly watertight iron roof. In them are pens of Light Brahmas, all mated with some particular object. Mr. Horsfall knows the pedigree of each bird, and looks for some particular excellence from every union. As in all yards and lofts where science is brought to bear upon breeding, some of the birds show what an ignoramus would call glaring faults, but which an experienced fancier knows to be valuable points in breeding stock. At the end of these runs is a row of substantial brick houses, each with a large covered aviary in front. These were the first poultry houses before their occupants rose to exhibition fame. Beyond them we come to three more large sheds, all dry and well lighted. Their floors are cemented and covered thickly with road grit, and exit can be given from all of them into a small grass run. They are employed for moulting adults and early chickens. In one is a magnificent old cock who has hitherto refused to discard some of his last year's plumage; in another the four first chickens of the year. From these a path leads to a field of three or four acres, a large portion of which is divided into twelve uniform runs, six on each side of a central walk, fenced about 4 feet high with boards and wire netting. The houses are built in pairs, each with a dusting shed on its outer side, and all are numbered. This field is on the north side of a wall, and so is chiefly used as summer quarters for the poultry. The chief sight, however, of all the establishment is a long airy house leaning to the wall. It is well lighted, and has a central passage from end to end and pens on each side—not cramped little exhibition cages, but about twenty real big pens. On the side towards the wall they are in two tiers, the lower for moulting fowls and sitting hens, the upper for trying and judging birds. On the other side is a single row of still larger pens, like small loose boxes, in which two or three exhibition birds can be kept on straw for a few days before show or housed in such weather as we have lately had. The roof is boarded, then covered thickly with straw and corrugated iron above, which Mr. Horsfall prefers to all other roofing as absolutely watertight. We cannot conceive a more perfect place for an amateur to attend personally to his fancy stock. Here ends the poultry yard, but not all connected with the poultry.

Mr. Horsfall has invented an incubator and a regulator for it; his gradual improvements may be seen in two or three machines made under his direction. Artificial mothers, too, he has; and it should be noted that during several seasons every bird at Grassendale Priory, including many renowned winners, has been reared artificially. The system seems to suit Brahmas, we fancy not all breeds.

Such is a yard which covers no great area, which has not involved any lavish expenditure, but which is, we believe, as perfect for its purpose as any in England.—C.

#### YEOVIL SHOW.

THIS, the fourth annual Exhibition of the Yeovil and Somerset County Poultry, Pigeon, &c., Association, was held on the 26th and 27th ultimo. The weather was unfavourable, the frost preventing some of the exhibitors from sending, while the rapid thaw on the first day of the Show acting upon the heaps of snow which covered the streets made progression a matter of difficulty. Mr. Leach, the Secretary, was indefatigable in his exertions, and the birds were thoroughly well cared for. Owing to the absence of the Rev. G. F. Hodson the major part of the poultry judging fell to the lot of Mr. Dixon. Mr. Sainsbury took the Waterfowl; Messrs. H. Allsop and T. C. Burnell judged the Pigeons, and the last-named gentleman also relieved Mr. Dixon of a few of the poultry classes.

The poultry were on the whole a good collection, and numbered 460 pens in the open and 170 in the local and selling classes. The schedule opened with—

**DORKINGS.**—*Coloured* (fourteen), which were only moderate in quality. First and Dorking cup (Synes) were both rather slight, and the cock was splashed on breast and poor in feet. Second (Newick) a larger pair, good in most points but too long in leg. Third (Newick) of similar stamp. The cock in pen 1 (Snell) was far the best Dorking in the class, but had dark feet and swollen toes; h.c., Phillips, Thomas, Gibbs, Radclyffe (2), Hamilton; c., Hamilton. *Any Other Colour* (seven) were a poor class. First (Coles) poor Silver-Greys. Second (Cresswell) Silvers again, the cock very defective in colour. Third (Hayne) the only pen of Whites in the class and not good, the cock having an inferior comb; h.c., Radclyffe; c., Plummer.

**COCHINS.**—*Cinnamon or Buff* (seventeen) were a fairly good class. First and cup for Cochins and Brahmas (Nickolls), Lemons, the cock fairly even in colour but too small, the hen shapely and well fluffed out. Second (Tomlinson) a moderate pair of medium colour. Third (H. G. Nicholls), the cock rather too much tail, but with perfectly feathered locks; the pullet wanting in shape and foot-feather; v.h.c., Clatworthy (an evenly matched pair of medium colour,

might have stood higher), Harris; h.c., Ruudle, Fowler, Bloodworth. *Any Other Variety* (fifteen) were the best class so far. First (Burt) good Whites, medium size, heavily feathered and hocked. Second (Beckerley) Partridge, fair in colour and marking, the cock rather wanting in foot-feather. Third (Darby) Whites, the cock beautifully clear in colour, the hen quite out of sorts; v.h.c., Snell, Andrews, Southern, Clatworthy, Rouse, Turner, Tomlinson; h.c., Fowler. Mr. G. H. Wood's pens in this and several other classes were empty.

**BRAHMAS.**—*Dark* (ten).—After the winners only a poor class. First (Joyce). The Palace cup cock mated with a small hen, very clearly marked on breast, but rather brown in ground. Second (Mrs. Turner) a moderate pair, the cock heavy in comb, splashed on breast, and heavily hocked; hen clear in colour, but wanting in marking. Third (Wheaton) only a moderate pair again, the pullet nicely marked, but too long in leg and back, and shallow; v.h.c., Wheaton (a shapely well-marked pullet); v.h.c. and h.c., Doel. *Light* (sixteen).—First (Holmes) a fairly good large pair, the cock rather yellow, and only moderate in comb. Second (Doel) of medium quality, the cock blind of one eye. Third (Snell), the cock very neat in head and stylish, but showing far too much black; the pullet poor; h.c., Doel, Turner, Drummond, Stratton.

**GAME.**—*Black Red Cocks* (twenty-three).—A very strong class. First (Tyler) a stylish bird, long in reach and in fine condition, but showing too much brown on breast and fluff. Second (Morris) a smart hard-feathered one, better in colour, a trifle flat in shin. Third (Mudford) a powerful-looking bird, long in reach but brown in fluff; v.h.c., Shawyer, Tyler; h.c., Place (2), Giles, Pashley, Mudford, Hopkins, Theobald, Fox, Tyler. *Hens* (twenty-four).—A good class, but not up to the last. First (Mudford) a shapely hard-feathered bird of good colour. Second (Tyler) a reachy pullet not quite so good in colour. Third (Tyler) long in reach but hardly style enough; h.c., Snell, Westcott, Hopkins, Alford, Hussey, Merrett, Fox, Tyler. *Brown Red Cocks* (eleven).—A good class. First and Game cup (Mercer) a somewhat leggy bird with a good eye and nicely laced breast. Second (Huxtable) stylish, and with a laced breast again. Third (Dance) not dark enough in face, and flat in shin; h.c., Hower, Dance, Snell, Morris, Dunstan. *Hens* (eleven) were another good class. First (Mercer) long in reach and hard in feather, of nice colour. Second (Dunstan) another of similar type but not so stylish. Third (Huxtable) hard in feather but deficient in style; h.c., Smith (2). *Any Other Colour Cocks* (eleven).—A fairly good class. First (Colgrove) a good yellow-legged Pile. Second (Huxtable) a stylish Duckwing. Third (Phillips) a Duckwing again, fine in head and long in reach; v.h.c., Lee (Duckwing); h.c., Theobald, Snell, Morris (all yellow-legged Piles). *Hens* (twelve).—First (Huxtable) a Duckwing, very good in colour. Second (Colgrove) a moderate yellow-legged Pile. Third (Phillips) a Duckwing again; h.c., Snell (yellow-legged Pile), Marley, Huxtable, and Tyler (Duckwings).

**HAMBURGINS.**—*Gold or Silver-pencilled* (seventeen) were a good class. First (Greenham) Golden, neat in comb and lobe and bright in colour. Second (Rawnsley) well-known Silvers. Third (Bell) Golden with fair combs and good lobes; v.h.c., Callcutt & Bell (Golden); h.c., Snell (Silver), Neal, Riddell, and Larcombe (Golden). *Gold or Silver-spangled* (ten) were a moderate class. First (Sutton) a nicely-marked pair of Silvers, moderate in comb and lobe; in fine condition. Second (Rawnsley) good Silvers again, the cock too heavy in comb. Third (Harris) moderate Golden; v.h.c., May; and h.c., Ashworth (Golden); h.c., Ashworth & Harris (Silvers). *Blacks* (thirteen) were another good class. First and Hamburg cup (Rawnsley) a very good pair in all points, and in great bloom. Second (Pettie) another fine pair close up to the winners. Third (Kellaway) in good condition, but the cock failing in comb and lobe; h.c., Lee, Bell (2), Ashworth.

**MINORCAS** (twenty-eight) were a wonderfully even class, but not of very first-rate quality for the home of the breed. First (Doel) a large fine pair with fair lobes, but both too heavy in comb. Second (Preby) very clear in lobe and in fine condition, but the cock white in flights and the hen white in fluff. Third (Elstou); the cock squirrel-tailed; v.h.c., Dominy; h.c., Clement, Watts, Neal, Baskerville, Honey, Harwood, Hawkins, Snell, Jones, Elstou, Tozer; c., Norton. **BLACK SPANISH** (three, had one pen empty). First-and-cup for the six classes from Minorcas to Silkies (Boulton) a very fine pair indeed. Second (Le Suenr); the cockerel held the same position at Birmingham; the pullet a good one.

**LEGHORNS** (twelve) were a poor class. First (Gibbs) moderate Browns, both too yellow in lobe. Second (Adams) Browns, the cock rough in comb and yellow in lobe. Third (Strong) poor Browns again, the cock very yellow in lobe; h.c., Williams (White), Stephens (Brown).

**HOUDANS** (thirteen) were a very strong class. First-and-cup (Nickolls) a large-sized pair of good colour, the cock rather heavy in comb. Second (Stratford) a fine large shapely hen with grand crest; the cock a trifle hollow in breast. Third (Howard) another good pair, the hen again being best; v.h.c., Fowler, Copplestone, Crookford; h.c., Thomas.

**LANGSHANS** (eight).—A moderate class. First (Bush) fair in size and in great bloom. Second (Buchan) not so large, and the hen rather uneven in comb. Third (Buchan) wanting in size; h.c., Bush.

**SILKIES** (thirteen).—A good class indeed. First (Cresswell) in nice feather and very neat, but rather too much of a canary shade for our taste. Second (Hudd) neat and pure white. Third (Cresswell) another very nice pair, very blue in lobe. 281 (Holmes) had combs and lobes of plain flesh colour; h.c., Goddard, Holmes, Darby, Ferris.

**POLISH** (eleven) were a good class. First-and-cup for Polish and three following classes (Rawnsley) well-known White-crests. Second (Huish) Golden, good in crest and colour, and fair in marking. Third (Huish) Silvers, very fine in crest, but deficient in marking; v.h.c., Ginton, Gawler (2), Bloodworth.

**MALAYS.**—*Any Colour Cocks* (fourteen).—A very good class. First (Joint) a reachy bird, with true Malay carriage, and in fine condition. Second (Waring) a Black Red in great bloom, and hard in feather. Third (Joint) a good one of the Dark sort, but one wing wrong; h.c., Shawyer, Waring, Huxtable, Tudrey, Richards, Joint. *Hens* (twelve).—First (Hosken) a rather heavy-looking bird of the Dark sort. Second (Huxtable), and third (Lecher) of medium colour, and better in shape than first; h.c., Bishop, Dowring (2, one being a good White); Evans.

**ANY OTHER VARIETY NOT MENTIONED** (fifteen).—First (Kilby) Plymouth Rocks, not yellow enough in leg. Second (Eyles) good Sultans. Third (Mauchiss) moderate Andalusians; h.c., Hewer, Symes, Adams (Plymouth Rocks), Vesey (Courtes Pates), Faye (La Flèche), Nicholson and Eyles (Sultans).

**BANTAMS.**—*Game.*—*Brown Reds* (eleven) were not a remarkable class. First (Osborne) neat and stylish, the pullet the best of the pair. Second (Chard) smart and hard-feathered. Third (Nicholls) reachy, but a little large; h.c., Cardell, Nicholls, Pashley, Mitchell. *Black Red Game* (twenty-seven).—A very good class. First (Allen) very shapely, hard in feather and good in colour. Second (Morgan) another very neat pair, not far behind the winners. Third (Hussey) rather loose in feather, and the cock carrying his wings rather low; v.h.c., Huxtable, Docksey, Dowell; h.c., Hore, Chard, Butt, Guin. *Game.*—*Any Other Variety* (twelve) were another good class. First-and-cup (Nicholls) a very smart pair of yellow-legged Piles. Second (Jones) very pretty Duckwings. Third (Hore) yellow-legged Piles again; another nice pair; h.c., Waters (yellow-legged Pile), Dowell (willow-legged Pile). *Black Rosecombs* (seventeen) were well



represented. First (Rawnsley) very clear in lobe and with neat combs. Second (Rundle) another smart pair, not so good in lobe. Third (Davies) the cock too heavy in comb; v.h.c., Wingfield, Ludlow, and Pearson; h.c. Bent. *Any Other Variety* (sixteen) were again a good class. First (Clarke) single-combed Cuckoo. Second (Rawnsley) White Rosecombs, good in comb, lobe, and colour. Third (Phelps) single-combed Cuckoos; v.h.c., Wingfield; h.c., Radelyffe and Miss Hubbard (Japanese), Miss Browne, Geary (2), and Pool (all Silver-laced).

DUCKS.—*Rouens* (nine) were not a remarkable lot. First-and-cup, Copplestone; second, Fowler; third, Nickolls; h.c., Snell, Dressing; c., Brutton. *Aylesbury* (eight) were only a moderate class. First, Hedges; second, Harris; third, Fowler; h.c., Snell. *Pekin* (twelve) were a good class. First (W. Nickolls) were perhaps the largest, but both second (Fowler) and third (Sutton) struck us as being better in carriage; h.c., Kellaway; c., Chubb, Baskett. *Any Other Variety or Ornamental Waterfowl* (eight) were well represented. First (Mr. Hayne) lustrous Black East Indians. Second (Pratt), and third (Miss Browne) were neat Carolinas; h.c., Mrs. Pratt (Whistlers), Linton (White Decoy), Brew (Black East-Indian).

## PIGEONS.

The open classes numbered 450 pens, and were, taking quantity and quality into consideration, one of the finest collections that has been seen in the West of England. In nearly all the classes the prizes went to birds that have been successful many times before, and are well known to fanciers.

POUTERS.—*Blue or Black Pied Cocks* (six).—First (Baker) a Blue, also took the cup for Pouters. Second (Fulton) a well-marked Black. Third (Baker) another good Black; v.h.c., Fulton (Blue). *Hens* (eight).—First (Fulton), second and third (Baker) were all Blues; v.h.c., R. Woods (Blue); h.c., Fulton (Black). *Any Other Variety Cocks* (six).—First (Baker) a Red Pied. Second (Fulton) a White. Third (P. Herrieff) a Red again; v.h.c., Baker (White). *Hens* (six).—First (Fulton) a Yellow Pied. Second (Baker) a Red Pied. Third (Baker) a Yellow Pied.

CARRIERS.—*Black Cocks* (nine).—First (Baker) took the cup for Carriers or Barbs, but was closely pressed by second (Fulton). This same exhibitor was placed third with a bird with wonderful wattle, but rather short in neck; v.h.c., Baker; h.c., Widger; c., Harris. *Any Other Colour Cocks* (three).—First (Fulton) and third (Widger) were Duns. Second (Baker) a very good Blue. *Any Other Colour Hens* (eight).—First, Mr. Baker's well-known Black. Second and third (Fulton) a Black and a Dun respectively; v.h.c., Widger (Dun); h.c., Widger (Black); c., Cooke (Dun).

BARBS (ten) were a very good class. First (Baker) and second and third (Fulton) were all Blacks; h.c., Sutton (Black), Pfefer and Baker (Duns).

TUMBLERS.—*Short-faced Almonds* (eleven) were another wonderfully good class. First (Fulton) a beautiful hen; also took the cup for Short-faced Tumblers. Second, Baker; third, Weston; h.c., Baker, Leith. *Any Other Variety of Short-faced* (ten).—First (Baker) a Red Agate, as also was second (Leith). Third (Fulton) a Kite; v.h.c., Weston (Yellow Agate), Baker (Red Agate); h.c., Hurdell and c., Weston (both Red Agates). *Balds or Beards Long-faced* (twelve).—First (Woods) a Blue Beard, also took the cup for Long-faced Tumblers. Second (Woods) a Black Bald. Third (Weston) a Red Bald; v.h.c., Mapplebeck (Feather-legged Black Bald); h.c., Hansford, Baker (Black Bald). *Any Other Variety Long-faced* (twenty-three).—First (Fulton) a Black Mottle. Second (Doughty) a Yellow Rosewing. Third (Wilkes) a Muffed Red Rosewing; v.h.c., Brunton (Red Agate), Doughty, Baker (Yellow Rosewings); h.c., Woods, Pfefer (Yellow Rosewings), Weston, Kohler (Red Rosewings).

OWLS.—*Foreign* (eleven) were all Whites with the exception of third, which was Black and White. First (Baker) also took the cup for Owls. Second, Woods; third, Fulton; v.h.c., Baker; h.c., Harvey, Billett; c., Wardle. *English, Blue or Powdered Blue Cocks* (ten).—First (Weaving) a powdered Blue. Second (Woods) a Blue. Third (Chipperfield) a powdered Blue; v.h.c., Von Senden; h.c., Stephens, Fulton; and c., Lewis (all powdered Blues). *English Any Other Colour Cocks* (ten).—First, Woods; second, Weston; and third (Andrews), as also all the other noticed birds, were Silvers; v.h.c., Van Senden; h.c., Weaving; and c., Brunton. *Any Colour Hens* (nine).—First (Weaving) a Silver. Second (Weston) powdered Blue. Third (Van Senden) a Silver; v.h.c., Lewis (powdered Blue); h.c., Fulton (Blue), Chipperfield (Silver).

DRAGONS.—*Blue or Black Bar Silver* (twenty-five).—First (W. Smith) a Blue, also took the cup for Dragons. Second (Lush); and third (Fulton) also Blues; v.h.c., W. Smith (Silver); h.c., Lush, Skinner, Waterman (2), Flanagan, Fulton, Whichelo, Allen (2), and Moody (all Blues), Close and Pfefer (Silvers). *Brown Bar Silver* (eight).—All the prizes went to Mr. Bishop, who also had three birds highly commended. *White* (eighteen).—First, Bishop; second, Berridge; third, Allen; h.c., Skinner, Bishop (3). *Any Other Colour* (twenty-two).—First (Close) a Yellow. Second (Leith) a Red. Third (Flanagan) a Blue Chequer; v.h.c., Widdows (Red); h.c., Leith, Stanhope, Elkington, Waterman, Widdows, Vicary, and Harris (Yellows), W. Smith and Allen (Grizzles), Jorden and Close (Blue Chequers).

JACOBS.—*Red or Yellow* (fifteen).—First and second (Weyman & Buchanan) a Red and Yellow respectively. Third (Fulton) a Red; v.h.c., Fulton (Yellow); h.c., Gould (Red), Sutton (Yellow); c., Baker (Red). *Any Other Colour* (twelve).—First (Fulton) which took cup for Jacobins and Fantails, as also second (Baker) and third (Roberts) were Blacks; v.h.c., Fulton; h.c., Weyman & Buchanan (2), and c., Andrews (all Blacks).

TURBITS.—*Blue or Silver Cocks* (five).—First (Fulton) a Blue, also took the cup for Turbits. Second (Baker) a Blue. Third (Baker) a Silver; h.c., Bulley (Blue). *Any Other Colour Cocks* (eleven).—First (Baker) a Red. Second and third (Fulton) Blacks; h.c., Cresswell (2, Blacks), Bulley (Yellow), Andrews (Red); c., Graham (Black). *Any Colour Hens* (seventeen).—First (Cresswell) a Black. Second (Lumley) a Blue. Third (Cresswell) a Yellow; v.h.c., Baker (Yellow); h.c., Fulton (Black), Stanhope, Rawnsley (Reds), Fulton, Lumley, Gregory (Blues), Billett (Silver); c., Bulley (Yellow), Billett (Blue).

FANTAILS.—*White* (fourteen) were a good class. First, Baker; second, Fulton; third, Baker; v.h.c., Loversidge; h.c., Cresswell (2). *Any Other Colour* (thirteen).—First and second (Cresswell) were Blues. Third (Dressing) a Black.

MAGPIES.—*Any Colour* (thirteen).—First (Stevens) a Black. Second (Mudie) a Red. Third (Harvey) a Black; h.c., Maurice, Stevens, Bulley (Blacks), Bulley (Yellow), Bulley, Phillips, and Beard (Reds).

SWALLOWS (eleven).—First (Bulley) a Red. Second (Bulley) a Black. Third (Sutton) a Blue; h.c., Allen, Tanner, Widdows (Blues), Stevens, Wardle (Blacks).

ARCHANGELS (twenty).—First, Allen; second, Ponnsett; and third (Allen) were all birds of great lustre; v.h.c., Stevens; h.c., Stevens, Webb; c., Allen.

TRUMPETERS (ten).—First (Baker), which also took the cup for Trumpeters, Magpies, Swallows, and Archangels. Second (Fulton), and third (Yardley) were fine Black Mottles; h.c., Wardle (2), Rowe (Black Mottles); c., Nicholls (Red).

ANTWERPS.—*Short-faced* (twelve).—First (Waterhouse) a Silver Dun, took the Antwerp cup. Second (Rayner), and third (Waterhouse) all Silver Duns; v.h.c., Rayner, and h.c., Turner (Red Chequers). *Medium-faced* (thirteen).—First (Rawnsley) a Red Chequer. Second (Thickett), third (Waterhouse), and v.h.c. (Wardle) were Silver Duns; h.c., Davis (Blue Chequer). *Long-faced* (six).—

First and second (Waterhouse) were Silver Duns. Third (Rawnsley) a Red Chequer. *Homing, Any Variety* (eighteen).—First (Turner), and second (Hewer) were Blue Chequers. Third (Fox) a Red Chequer; v.h.c., Crust (Blue Chequer); h.c., Pitcher, Leak (Red Chequer), Gillham (Silver Dun), Jenkinson.

ANY OTHER SHORT-BILLED FRILLED VARIETY (fifteen).—First (Waterhouse) a Blue Vizor, also took the cup for this and the next class. Second (Baker) a Turbitten. Third (Yardley) a Blondinette; v.h.c., Wardle (Blondinette) Baker; h.c., Allen, Lewis (Satinettes); c., Fulton (Blue Vizor).

ANY OTHER NEW OR DISTINCT VARIETY (thirteen).—First (Fulton) a Blue Frillhack. Second (Wardle) a Black Priest. Third (Yardley) a Laced Ice; v.h.c., Chevassé (Modena), Gatty (Fireback); h.c., Bulley (Blue Priest) Webb.

## PROFITABLE POULTRY.

THE following return of the number of eggs laid by my hens during the past years, and of the cost of their food, may be of interest to your readers:—

Month.	No. of Hens.	No. of Eggs.	Average per Hen.
January .....	29	107	3.68
February .....	29	171	5.89
March .....	37	527	14.24
April .....	35	407	11.62
May .....	35	359	10.25
June .....	35	264	7.54
July .....	35	266	7.60
August .....	35	133	3.80
September .....	35	178	5.05
October .....	30	9	0.30
November .....	28	12	0.42
December .....	28	60	2.14

This gives an average of 32½ hens through the year, and a total of 2493 eggs, value £15 9s. 1½d.

I have reckoned the price of the eggs as 1½d. each throughout. This sum I have always been able to obtain even in the season when eggs were most plentiful, and could doubtless have obtained double that price in the winter months had I been able to spare the eggs.

I account for the bad egg return from the month of August on to the end of the year partly by the fact that, owing to severe illness, I was unable to attend personally to the feeding, &c., of the birds, and partly by the fact that for the same reasons all the chickens of the year except a very few January pullets died. The January pullets moulted at the same time as the old hens, and I have come to the conclusion that for mere laying purpose it is unadvisable to hatch pullets earlier than March.

The cost of feeding during the entire year was £9 5s. 7d.; the feeding used was Wheat, Barley, Oats, pollard (or middlings), and a little Indian corn. The food of the chickens reared and which died is included in the total. The fowls had a house about 10 feet by 6 feet with a moderate-sized yard, but as a general rule they had the run of a grass field at the back. About eight of the hens are Leghorns, seven Minorcas, and the remainder crossbred.

It will be seen that I made a profit of £6 3s. 6½d. during the year, this of course without counting anything for rent or labour, or reckoning the scraps from the house as of any value. As my stock was about equal in numbers at the commencement and end of the year, that item need not be taken into account.—W. C. Dalkey.

## CAMBRIDGE SHOW.

THIS Show, which opened on Tuesday and closes to-night, possesses a special interest, inasmuch as the youngsters have a chance through the exclusion of the Palace and Birmingham winners in the poultry classes. The building (the New Corn Exchange) is admirably adapted for a show, and the arrangements were all that could be desired. The Secretary (Mr. R. Peters, jun.) and Committee have their hearts in the work, and the results are, as might be expected, a success. Exclusive of selling and local classes poultry had 323 entries; Pigeons 213. Mr. Cresswell judged all the poultry that were judged except Game and Game Bantams, which were taken by Mr. Entwistle.

BRAHMAS.—*Dark Cockerels* (seven).—Beyond the winners were not a strong class. First (Lingwood) a large well-feathered bird, black-breasted, rather coarse in comb, the unnoticed Dairy Show cockerel we think. Second (Comyns) a very shapely neat-headed hocked bird of silvery colour, but too small, and not quite black on breast. Third (Comyns) a neat head again, with a very small comb rather high behind; larger than but not so shapely as second. Fourth (Williams) neat-headed shapely bird, but rather dark on shoulder; not quite black under throat, and too much hock for his foot feather. *Pair of Pullets* (eleven) were a strong class, all the noticed birds being above the average in merit. First and Brahma cup (Lingwood) a very fine shapely pair, heavily feathered, with moderate hocks, well marked in the dark style, but rather brown in ground for pullets. Second (Lingwood) same type as regards shape but no hocks; lighter in ground, and pencilling indistinct. Third (Percival), one pullet good in shape and beautifully marked on a silvery ground, the other a very inferior bird. Fourth (Percival), both well-marked Silvers, but one wanting in solidity, and both deficient in feather; v.h.c., Holland; h.c., Comyns (2), Barclay. *Light Cockerels* (fourteen) were only a moderate class. First (Haines) very shapely and good in colour but hocked—an easy win. Second (Lucas) a stylish bird of this exhibitor's usual type, rather long in leg. Third (Haines), shapely and well feathered, but not pure in colour, and twisted in hackle. Fourth (Silvester) shapely but small, white in tail, and hocked; v.h.c., Lucas,

Collisham; h.c., Morgan. *Pair of Pullets* (eleven).—There were many good single birds, but they were badly matched throughout. First (Lucas), one wonderful pullet with the one fault of a not very clear hackle, mated with a large shapely one rather yellow in ground. Second (Haines) a large well-matched pair, rather coarse in head. Third (Collisham) a neat-headed shapely pair, but rather small. Fourth (Morgan), both good pullets, but badly matched; v.h.c., Morgan; h.c., Morgan (4).

COCHINS.—*Buff or Partridge Cockerels* (seventeen) were a wonderfully fine class. First-and-cup (Pye) a beautifully even-coloured Buff, grand in shape, locked with fine feather. Second (Clatworthy) another good Buff, not so solid in build as the first. Third (Brown) a very good Buff. Fourth (Clatworthy) a neat Partridge; v.h.c., Bloodworth (2); Clatworthy, Nicholls (all Buffs); Paxton (Partridge); h.c., Bloodworth (Partridge), Bullard (Buff). *Pair of Pullets* (ten) a moderate class.—First (Darby) large and well feathered, but not very even in colour, and high in tail. Second (Allerton) shapely Partridge, well marked and nicely fluffed out, ran the winners very close. Third (Bloodworth) moderate Buffs. Fourth (Bullard) large Buffs, failing in colour; h.c., Bloodworth (2, Buffs), Bullard (Partridge). *White or Black Cockerels* (four).—There being less than six entries, first was withheld. Second (Darby) a grand White very nearly up to the cupwinner. Third (Morgan) a fair White. Fourth (Lincolne) a poor Black. *Pair of Pullets* (four).—Hard luck again for Mr. Darby, first being again withheld. Second went to a very good pair of his Whites. Third (Morgan) Whites again, very bad in colour. (Fourth Lineolne) fair Blacks.

DORKINGS.—*Cockerels* (sixteen) were a good class.—First-and-cup (Swales) a large shapely coloured bird, good in all points. Second (Wood) a smart-coloured bird of the old sort. Third (B. Smith) coloured again, good in size, but rather long in leg and heavy in comb. Fourth (Woodgate) a very dark-coloured one, good in size, but too upright in carriage; h.c., Reed, Wallis, Woodgate (coloured); c., Atterton (2, coloured), Berry (White). *Pair of Pullets* (eleven) were a good class, made up entirely of coloured birds.—First (Wood) good in size and white in feet, but rather long in legs, and with white ears. Second (B. Smith) were of similar stamp, but even longer in leg. Third (White) a good-sized pair, one very dark in feet. Fourth (Mills) moderate; h.c., Darby.

FRENCH.—*Cockerels* (eleven).—A very good class made up of six Crèves and five Houdans. First (Fullarton) a large shapely Crève in fine condition. Second (Jackson) a Houdan of good size, but rather wanting in breast. Third (Carlton) a good-sized Crève, poor in crest. Fourth (Lamb) a small but neat Crève; v.h.c., Jackson (Houdan), Mackwell (Crève); h.c., Darley, and Palmer (Crèves), Howard (Houdan). *Pair of Pullets* (six) were for their numbers a very good class, all being noticed. First (Nicholls) a grand pair of Houdans. Second (Fullarton) fine Crèves, one pullet rather crooked in crest. Third (Markwell) medium-sized but neat Crèves. Fourth (Howard) very dark Houdans, good in crest and muffled; h.c., Palmer (Crèves), Thomas (Houdans).

GAME.—*Black or Brown-Red Cockerels* (fourteen) were a good class. First-and-cup for Game and Game Bantams (Fludger) a very stylish Brown Red, of great reach, and nicely laced on breast. Second (Martin) another Brown Red of similar stamp, but not so hard in feather. Third (Bothway) a close-feathered neat-headed Brown Red. Fourth (Adams) another good Brown Red; h.c., Adams; and c., Blood & Dames (Brown Reds). *Pair of Pullets* (seven).—Here again the Brown Reds had much the best of it. First (Bothway) stylish Brown Reds, hard in feather, and well shown. Second (Martin) of similar stamp, as also were third (Snell). Fourth (Merrett) moderately Black Reds. *Any other Variety Cockerels* (ten) only a moderate class. First (Bothway) a rather large yellow-legged Pile. Second (Mason) and fourth (Martin) were of the same colour. Third (Perry) a neat Duckwing. *Pair of Pullets* (two).—First and third withheld. Second (Perry) willow-legged Piles. Fourth (Snell) yellow-legged Piles.

HAMBURGS.—*Golden-spangled Cockerels and Pullets* (eight) only a very moderate lot. First (Jones) good in lobe and colour, but rather heavy in comb. Second, Jackson; third, Plattin; fourth, Digby. *Silver-spangled Cockerels and Pullets* (eight) were a rather better class, but heavy combs were too prevalent. First, Ashworth; second, Pointer; third, Stauwell; fourth, Digby. *Golden-pencilled Cockerels and Pullets* (sixteen) were a better class. First and Hamburg cup (Orriess) good in colour and marking, and neat in comb and lobe. Second (Castell) nice style and colour, but the cock red in lobe. Third (Carver), the cock bad in lobe again. Fourth (Ticknell) a neat pair; h.c., Brown, Robinson. *Silver-pencilled Cockerels and Pullets* had four entries, but two empty pens.—First and third were withheld. Second, Snell; fourth, Plattin. *Black Cockerel and Pullet* (thirteen).—There were four empty pens, and the quality of the rest was only moderate. First (Digby) stylish and in fine gloss, but rather heavy in comb. Second (Turner), third (Berridge), and fourth (Pointer) were all fairly good pens.

BANTAMS, GAME.—*Black or Brown Red Cockerels and Pullets* (eleven).—First (Hore) neat Black Reds. Second (Challands) reachy Brown Reds. Third (Ditcham) a very smart Black Red cockerel, mated with a moderate pullet. Fourth (Mills) Black Reds, in fine condition; h.c., Southwell (Black Reds). *Any other Variety Cockerels and Pullets* (six) were a fair class. First (Hore), Second (Goodbody), third (Miller), and fourth (Pearson) were Piles, alternately yellow and willow-legged.

SEBRIGHTS.—*Cock and Hen, any age* (seven), were only a moderate class. First (Morgan) Golden, second (Leno), third (Morgan), and fourth (Tearle) Silvers; v.h.c., Leno (Golden, perhaps the best in the class), Nixon (Silvers).

BANTAMS.—*Any other Variety and any age, not Game or Sebrights* (eleven) were a good class. First (Miss Hubbard) Japanese. Second (Mrs. Reed) Black Rosecombs. Third (Rhodes) and fourth (Tearle) both White Rosecombs; h.c., Atkins (Japanese), Digby (Black Rosecombs).

ASEELS.—*Cocks*.—First, Fellows; second, Bryan; third, F. G. Dutton; v.h.c., Bryan, Gatty; h.c., Carvill, Mann, C. Bunnett. *Hens*.—First, Peake; second and third, Dutton; fourth, Bunnett; v.h.c., Dutton (2), Sugden, Peake; h.c., Mann, Mills, C. Sugden.

ANY OTHER VARIETY.—*Cockerel and Pullets* (fourteen).—First (S. Smith) moderate Spanish; second (Ekins) good Frizzles; third (Jackson) Minorcas; fourth (Miss Portman) Andalusians; v.h.c., England (Silkies); h.c., Horner (Golden Polands), Moore (Minorcas); 322 (Waller) unnoticed, a really good pen of Spanish.

DUCKS hatched in 1880 *any Variety* (fifteen) were a strong class. First-and-cup (Morgan) Pekins, very good in colour and carriage. Second (Snell) good Aylesbury. Third (England) very lustrous Black East Indias. Fourth (Waite) Good Rouens; v.h.c., Bayley (Pekins), Rawson (Rouens); h.c., Bygott (Rouens), Portman (Black East Indian), Snell (Pekins).

#### PIGEONS.

ANTWERPS.—*Short-faced* (nine) were not a remarkable class. First (Weaving) a Silver Dun, an easy win. Second (Stanhope) a Blue Chequer. Third (Carter) and fourth (Weaving) Red Chequers. *Any Other Variety* (sixteen).—A fair class. First (Spink) a Red Chequer. Second (Dant) a poor Blue Chequer. Third (Tebbutt) a Silver Dun. Fourth (Denny) a Blue; h.c., Bracher, Coulson, Hinson (Blue Chequers).

CARRIERS.—*Cocks* (nine) a good class well placed. First (Baker) the champion Black. Second (Hale) a Black. Third (Hammond) a Blue. Fourth (Waldock) a Dun; h.c., Stocker (2, Blacks). *Hens* (thirteen).—After the winner a poor class. First, Mr. Baker's well known Black hen. Second (Denny) a Dun. Third (Hammond), a Blue. Fourth (Lass), a Black; v.h.c., Hale (Dun); Stocker (Black); h.c., Hollick and Hutt (Black); Leno and Kempton (Duns). *Cock or Hen hatched in 1880* (thirteen) a very good class. First-and-cup (Baker) a well-known Black. Second (Hale) a Dun. Third (Kempton) and fourth (Clifton) Blacks; v.h.c., Hollick (Black); h.c., Byford (Black), Hollick (Dun).

DRAGONS (twenty-two) a very good class. First (W. Smith) Blue, an easy win. Second (Waterman) Yellow. Third (Elkington) a Blue Chequer. Fourth (Greenhalgh) a Blue; v.h.c. and h.c., Atkins (Yellow); h.c., Berridge (White), Byford (Yellow), Waterman (2, Blue and Red).

POUTERS.—*Cocks* (eighteen).—This and the next class were the best amongst the Pigeons. First-and-cup for Pouters and Tumblers (Sugden), the Birmingham and Palace winner. Second (Herrieff) a grand Red. Third (Baker), the well-known Blue Pied Kilmarnock cock. Fourth (Byford) Mr. Pratt's old White cock; v.h.c., Sugden (Red); h.c., Sugden (Yellow), Ashton & Byford (Whites), Greenhalgh (Blue), Howard (Sandy), Herrieff (Red). *Hens* (fourteen).—First and fourth (Sugden) Blues. Second (Byford) a grand White hen. Third (Herrieff) Red; v.h.c., Howard (Yellow); h.c., Baker (Blue), Sugden (Red) Swan (White).

TUMBLERS.—*Short-faced* (thirteen).—A very good class. All the prizes went to Mr. Braid. First, an Almond hen; second, a Kite hen; third, an Almond cock, the Birmingham cupwinner; fourth, a Red Agate Mottle; h.c., Baker, Howard (Almonds); h.c., Braid (Almond), Langridge (2), an Almond and a Yellow Agate. *Any Other Variety* (thirteen).—A poor lot. First and second (Bowler), a Red Mottle and a Black Mottle; third (Braid), a Black Bald; fourth (Howes), a Blue Beard; h.c., Waterman (Black Mottle).

JACOBS (thirteen).—After the winner only moderate. First (Gould) a Red well placed. Second and third (Hammond) a Yellow and a Red. Fourth (Mann and Porter) a Yellow; h.c., Mann & Porter, Passmore, & Gould (Reds).

OWLS (fourteen).—A good class. First and third (Weaving) a Silver and a Blue. Second (Baker) White African. Fourth (Stanhope) Silver; h.c., Alford and Chipperfield (Blues), Langridge (Silver).

TURBIS (fifteen).—After the first three a poor lot. First-and-cup for last five classes (Baker) a Blue. Second (Sugden) a Blue. Third (Lumley) a Blue. Fourth (Tebbutt) a Yellow; h.c., Lumley (2), and Brampton (all Blues).

BARBS (six).—First (Baker) a well-known Black, easily ahead; the rest only moderate. Second (Hale) a Black. Third (Stanhope) a fair White. Fourth (Alford) a Black.

ANY OTHER VARIETY OF PIGEONS (fifteen).—First (Greenhalgh) a Red Swallow. Second (Elkington) a Frillback. Third (Baker) a Black Mottled Trumpeter. Fourth (Baker) a Blondinette; v.h.c., Ashford (Satinette), Rum-below (Blue Priest); h.c., Ashford (Brunette), Collingwood (White Fantail), Mudie (Red Magpie), Reid (Blue Runt).

#### OUR LETTER BOX.

**Artificial Hatching and Rearing** (*La Flèche*).—Through an oversight the temperature to be maintained during the first ten days of hatching was given on page 82 (last week) at 202°, it should of course have been 102°.

**Artificial Hatching** (*L. Malcolm*).—You cannot hope to attain any success by the method you indicate, you must procure a proper incubator. The hot-water pipes might be utilised for rearing the chickens, but to hatch in such a way is quite out of the question. As to the proper temperature see our article in last week's Journal. Books on hatching, &c., at present published, are "Hydro-incubation," by T. Christy, 1s. (Christy & Co., 155, Fenchurch Street, E.C.), "Practical Artificial Incubation," by E. Brown, 1s. (Cassell & Co., Ludgate Hill), and "Artificial Incubation," by H. Tomlinson (see advt. in No. 29 of Journal).

**Distinguishing Sex of Guinea Fowl** (*R. J. H.*).—There is no distinction between the plumage of the cock and hen. The male birds arch their backs and run along on tiptoe with a mincing air, they are also more vicious to other fowls than the hens; they also have larger wattles. The hen alone utters the peculiar cry which resembles the words "Come back." It is only by observing these points that you can tell which is which. In a state of nature Guinea Fowls pair. In confinement two hens are as many as you can safely put with one male bird.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.  Jan.		Baromet- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	23	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
		30.186	32.8	32.0	N.	33.4	36.8	15.4	46.0	15.4	—	
	Mon. 24	30.299	23.8	23.8	N.E.	33.4	31.6	23.8	30.8	23.4	—	
	Tues. 25	30.043	24.3	24.0	N.E.	33.3	30.0	23.2	30.8	20.3	—	
	Wed. 26	29.727	18.7	18.5	N.E.	33.1	33.6	17.3	33.0	9.4	0.107	
	Thurs. 27	29.324	34.6	34.6	S.W.	33.1	42.2	19.4	46.8	19.4	0.077	
	Friday 28	29.088	36.6	36.6	N.W.	33.3	42.7	33.8	49.4	33.3	0.081	
	Satur. 29	28.943	44.4	44.3	S.	33.4	47.8	36.3	53.4	33.3	0.136	
Means.		29.659	30.7	30.5		33.3	37.8	24.2	45.7	22.1	0.421	

#### REMARKS.

23rd.—Generally cloudy and calm, occasional sun, frost less severe.

24th.—Sharp frost, overcast and misty.

25th.—Very cold, but fine with bright sunshine.

26th.—Calm, overcast, sharp frost; milder in evening, silver thaw at night.

27th.—Thick fog in morning and thaw, fine in middle of day, misty again in evening.

28th.—Very damp, cloudy, bright at intervals.

29th.—Very mild, warm wind and rain, snow fast disappearing.

No frost after the 27th, but a gradual thaw with drizzling rain. The mean temperature of the week, notwithstanding the mildness of the last two days, was far below the average. The mean temperature of every day from the 5th to 27th was below the average; that of every day from the 12th to 27th was below freezing point. It was one of the most remarkable cold periods of this century, but shorter in duration than that of January, 1814.—G. J. SYMONS.





10th	TH	Royal Society at 4.30 P.M.
11th	F	Quekett Club at 8 P.M.
12th	S	Royal Botanic Society at 3.45 P.M.
13th	SUN	SEPTUAGESIMA.
14th	M	Royal Geographical Society at 8.30 P.M.
15th	TU	
16th	W	Meteorological Society at 7 P.M. Society of Arts at 8 P.M.

### THE CULTIVATION OF GARDENIAS.

**T**HE Gardenia as an evergreen stove plant ranks very highly in popular estimation, and is much admired by ladies for the purity and fragrance of its flowers, especially as they can be obtained during winter and spring. The blooms individually are only of short duration, yet they are produced in succession, and a large plant will have flowers during a period of some weeks. With a number of plants and plenty of room at command Gardenia blooms can be produced over a period of several months if care be exercised in preparing the plants and retarding them as the case may be. Their natural time of flowering under ordinary stove treatment will be through March, April, and May. To obtain them in autumn requires much time, room, and plenty of plants to work upon.

Propagation can be effected at almost any season of the year by cuttings. These are not difficult to strike either from the ripened wood or from young shoots. If rooted about August from half-ripened wood we have the whole of the following season in which to grow the plants; yet if rooted in January or February good plants can be grown to produce ten to twelve blooms each next spring. The cuttings are best inserted singly in small 2-inch pots, in a mixture of peat and sand, and plunged in bottom heat in the propagating frame or under a bellglass. If practicable, and bottom heat can be applied until August, the growth is much more rapid; this, however, is not necessary unless large plants are wanted quickly.

In preparing for potting, the pots should be carefully drained and a little moss or the roughest portion of the compost placed over the crocks. The new soil should be pressed firmly into the pots, so that water cannot pass through it and leave the old ball dry. Potting must be done with care. The system of using a sharp-pointed stick to set the roots at liberty when repotting cannot be too strongly condemned, as I believe more plants are destroyed through this than from any other cause, especially fine-rooted plants such as Heaths, and this applies with equal force to the Gardenia. The crocks only should be removed, and any loose soil from the top of the old ball. The time of potting varies, especially with established plants, and the period they are wanted to bloom. Some cultivators prefer potting as soon as blooming is over. The operation is best carried out as soon as the flower buds commence forming, for then Gardenias always unfold a number of leaves, and the roots are active and soon take to the new soil. The plants after flowering are ready to be cut back, and will start at once into vigorous growth without being again disturbed.

The compost suitable after the young plants are rooted is

rich fibry loam and peat in equal parts, adding a 6-inch potful of bone dust to every barrowful of soil, and plenty of coarse sand to make the whole porous. When the 2-inch pots are full of roots 4-inch pots should be employed, and afterwards the house or pit in which the plants are growing should be kept rather close for a week or ten days until the roots have taken to the new soil. The atmosphere should be moist and the plants well syringed overhead. The plants must not be allowed to suffer by want of pot room, and must be transferred into larger pots as required. Pots 6 or 7 inches in diameter will be large enough the first season, and bushy plants can be grown in those sizes if attention be paid to stopping the shoots as they grow.

If required to bloom the first season the growths should not be stopped later than the first week in August, but be allowed to extend, the plants being grown from that time under the influence of a little more air. Under these conditions young plants will soon complete their growth and form flower buds, averaging from ten to twelve upon each plant. These will unfold during March, or earlier if brought forward rapidly in brisk heat after the buds are set. If the object is to grow the plants to a good size as quickly as possible they should not be allowed to bloom, but be stopped later than the time named to prevent shortening the growths, which occurs by cutting the blooms; the plants then start early again the following year. If allowed to flower, and two or three months are thus lost at the commencement of the year, a much longer time will be required to have the plants of large size; and at this period when root-action has fairly commenced the plants should be placed in 8-inch pots and grown on under the same conditions as described above. This, the second season, they should make rapid strides, and be ready by the end of June to be placed in 10-inch pots provided every attention recommended has been carried out. Any shoots that require stopping should be attended to, and the plants be grown on rapidly under the influence of light and sufficient air to cause their growth to be short and possess that solidity which is essential for a good set of flowers. Potting twice in a season will not be necessary after the plants have attained a fair size. Ten and twelve-inch pots are large enough for all ordinary purposes. When placed in the last-mentioned size they can remain in them for several years if liquid manure is supplied while the plants are growing and the flower buds advancing. Nothing is better than occasional applications of soot water, which quickly imparts a deep colour to the foliage. Plants can be kept in small pots under the same conditions if necessary.

While growing, Gardenias require liberal applications of water both at the roots and upon the foliage, and in no stage should they be allowed to suffer from insufficient supplies. After potting water should be very carefully applied, and if the soil is moist when used some days will elapse before water is required, which will give time for the roots partially to recover from the damage received in removal.

The Gardenia is subject to many of the insects which infest stove plants, and if close attention is not paid to keep them thoroughly clean much trouble and annoyance is caused. This is, perhaps, the reason why the plants are not more largely grown in some gardens, especially where plant houses are infested with mealy bug, scale, and other insects, which at once arrest growth and leave but little chance of success in culture.



Insects of the nature indicated will not prove such a source of annoyance to cultivators if the plants are kept in good health and grown luxuriantly; but once thoroughly checked they appear to become a prey to all kinds of insect pests. When out of flower Gardenias in exuberant growth are very beautiful on account of the dark glossy foliage which is so characteristic of the plant when in good health.

In training the plants the foundation must be begun by bringing the shoots down to the rim of the pots if round bushes are required, which can afterwards be kept in shape by stopping and regulating the shoots as they grow. After flowering they can be cut into shape with the knife. The system of tying and twisting the specimens into the form of pyramids and other shapes as if clipped with a pair of shears cannot be too strongly condemned. The foliage cannot be kept clean when the shoots are closely tied and twisted together. The plants do not show off their flowers so well, nor are they so natural-looking as if grown as free informal bushes without tie or stick after the foundation has been laid.—W. BARDNEY.

### STRAWBERRY FARMING.

(Continued from page 74.)

*Planting.*—New plantations may, according to circumstances, be laid down either in autumn or early spring. Autumn planting has the advantage of yielding a partial crop the following season, but is not always practicable, owing to the difficulty frequently experienced of finding rooted runners sufficiently early and land available without missing a crop. Many soils are much subject to be raised by frost and throw out the plants, and on this account we do not recommend autumn planting later than August. The plants, then in full vigour, will thus get firmly rooted before winter. To ensure land for this planting it must either be summer-fallowed or planted with Potatoes of early sorts that may be cleared off in time.

Spring planting, on the other hand, while it yields, or rather ought to yield, no return the first season, presents no difficulty as to finding plants or vacant ground. The plants may either be left on the runners till required, or taken up the previous autumn and closely packed in beds over which ferns or straw may be thinly spread during frosty weather.

The most vigorous plants are secured from rows that are producing their first or second crop of runners, and it is well to reserve a small quarter for the special purpose of producing these. The best system of cultivation for fruiting purposes, as we shall see, makes it impossible to obtain both fruit and runners of the best quality from the same plants. We therefore recommend a small nursery of each kind wanted, to be formed the season before the plants are required. In this the fruiting stems should all be removed as they appear, and the surface lightly mulched with decayed manure and kept soft and untrodden. If the plants have room enough, say 2 feet each way, each should under this treatment produce from ten to twenty or thirty plants during the season. Beginners must of course borrow or purchase, and as strong plants carefully lifted and packed may be had in this neighbourhood at least at from 5s. to 7s. 6d. per thousand, the item is not a very serious one.

The young plants, especially in autumn, ought to be lifted very carefully by means of a fork, and the soil shaken from their roots. They should then be bunched in one hand, the roots straightened out one way and the leaves and runners the other. When a handful has been collected, all straggling leaves and runners must be trimmed off, and, if for sale, they should be tied in bunches of, say, twenty-five each. Plants thus prepared are worth a shilling or two a thousand more than if thrown carelessly together.

It is well to see that the ground is ready to receive the plants immediately they are prepared. After a well-manured Potato crop a moderate dressing of decayed manure should be ploughed in and the ground thoroughly levelled by the harrow. And now comes the question as to the mode of cultivation to be adopted. In order to avail ourselves, as far as possible, of horse labour, it is necessary to plant in rows; but while this is generally done, there are three different systems of after treatment among which to choose. First, there is the system under which such runners as may chance to root themselves in the line of the plants are allowed to remain, forming in the course of a year or two the matted row. Under the second system each pair of rows is allowed to mat together into what we may call the matted bed, alleys being thus left only between alternate rows. Under the third system, which we decidedly prefer, no runners are allowed to root at all, unless required to fill blanks. This we may call the single-stool system,

and is the only one that allows us to obtain the full advantage from the original plants. Either of the former two systems might do if we could secure freedom from weeds and a fertility of soil practically inexhaustible. It is argued on their behalf that a new set of plants is continually coming into bearing, and thus the plantation may last many years. To this we reply, that a single plant properly cultivated and kept free from runners will produce more fruit and of better quality than if allowed to spread at will; and will besides continue in full bearing for at least five or six years, by which time it is in any case desirable to break up the plantation, which we can do the less grudgingly as there are no young plants tempting us to delay till another season. The single-stool system is the only one that allows us the full capabilities of the original plants, the full advantage of horse labour, and the entire command over the weeds.

The rows should be at least 30 inches asunder, and the plants from 15 to 18 inches apart according to the vigour of the variety cultivated. At the less distance about fourteen thousand plants per acre will be required. Planting should be done by means of a line and a trowel; and if two persons are engaged—one to manage the line and make the holes, the other to set the plants—the work can be done very quickly. The roots should be spread in the holes so that each fibre may be in contact with the soil, and not matted together as is the case when a dibble is used. In autumn the roots may be planted entire, but in spring should be previously shortened about a third of their length for reasons previously given. The plants should be set so that the crowns are rather under than above the general surface; and the soil, at first filled in lightly, should be afterwards pressed so firm that it will not be easy to pull the plants up again. In very dry weather it may be necessary either to puddle the roots before planting, or to pour a little water into each hole.—WILLIAM RAITT, *Blairgowrie*.

### THE BLUE ROMAN HYACINTH

"A VERY extensive cultivator of bulbs" who condemns this form should, perhaps, give reasons for his condemnation. If on account of capricious taste in the market it is hardly fair, because that has little to do with intrinsic merit. Before reading the remarks referred to, I supposed the small favour that this form has met with to be due to shy-flowering habit. It may vary in this respect, because among a number of bulbs I have in no case less than two spikes from each, and I have even noticed three. If a blue Roman Hyacinth is of any use, I see no reason for condemning this plant. I do not see how a plant so totally distinct as *Scilla siberica* is, can be compared with it. If a lady desires bright blue flowers and does not care in the least what plant affords them, there is nothing but the *Scilla* to take. Truly the blue Roman Hyacinth is not a fine plant (nor is the white but for the acceptability of its pure white flowers), but I think that it has been condemned beyond its deserts.—L.

WE believe your correspondent in last week's Journal was under a cloud when he wrote about blue Roman Hyacinths. We have grown many hundreds of them this season, and shall grow thousands next year, they are so useful. They cannot be forced so well as white Romans, but may be easily had in flower at Christmas. The bulbs were potted in 5-inch pots, four in a pot, and treated like white Romans, each bulb producing three or four spikes, and not one missing.

The white Italian Hyacinths are also very useful, flowering about the same time, the flowers being much larger than the blue, and succeeding white Romans well.—JONES & SONS, *Shrewsbury*.

### THE VEGETABLE SUPPLY.

I CAN endorse every word Mr. Iggulden says on page 64; and I hope farmers will take the advice of a capable man like himself, and not be led astray by no doubt well-meaning M.P.'s and other gentlemen who have necessarily little or no practical knowledge of this subject, and who, in my opinion, do a great deal of harm by the advice which, through the best of motives, they give so freely.

"WILTSHIRE RECTOR" says he does not refer to London but to the provinces, when he says that the supply of vegetables is not adequate to the demand. As a provincial grower I beg to differ from him, and I say that in the markets of Liverpool, Manchester, and adjacent large towns vegetables never were more abundant or finer, neither were prices before so low as last year. Were I not afraid of taking up too much space I would specify the wholesale prices of the principal articles, prices that in most instances were a dead loss to the grower, who had to take

any price to get his cask emptied, or else take his wares home again.

The poorer classes as a rule, except the Irish who buy Cabbage, do not eat vegetables, but it is not scarcity or the price either that deters them; if they have threepence in their pocket they will purchase a pint of ale with it rather than buy wholesome vegetables with the money. The better class of working men can, and do, have a sufficient supply of fresh vegetables and fruit in their season at the lowest price at which it can be grown. Therefore in the face of these facts, and glutted markets already existing, I would advise those farmers who are thinking of turning their attention and probably some of their best land to vegetable growing, to think before it is too late, for the supply already far exceeds the demand, and the strong foreign and south country competition is every year increasing. When those growers already in the field have their land in the highest state of cultivation, with all their experience, knowledge of markets, &c., have to sell their produce for prices that barely, and in many cases do not, repay expenses, and when there are scores of acres of Savoy and other vegetables decaying on the ground for want of a demand, where is the farmer going to find his customers? In conclusion I beg most emphatically to say, and I think my fellow market gardeners will agree with me, that the supply of vegetables is already in excess of the demand, and that is not because they cannot get them at a fair price or at their own street corner that the poorer classes do not eat them. You may take a horse to the water, but you cannot make him drink.—A MARKET GARDENER, *Cheshire*.

As a subscriber to your Journal, and a market grower in the vicinity of Liverpool, permit me to add my warning against the too sanguine views of the results of growing vegetables for market. To the town of Liverpool growers take their produce in their own carts into large markets and sell direct to the shopkeepers, and are thus on favourable terms compared with some other towns. In spite of this, and also being within reach of many other large towns, I can scarcely name more than one or more vegetables that this year have paid the grower.

Cabbages, Cauliflowers, Peas, Beans, Celery, Brussels Sprouts, Potatoes, Turnips, have all been sold at prices that do not pay, or barely pay, the cost of production. Besides this, to an ordinary farmer a severe winter is no harm, to a large grower of vegetables it is invariably more or less damaging; in the last three winters, including the present, my loss is not less than £700.

The last frost in this district was disastrous. Savoy and Brussels Sprouts are nearly all killed, and besides Celery will be a serious loss.—A MARKET GARDENER, *Liverpool*.

#### THE GREAT FROST.

"BLACK TUESDAY," says the *Times* (January 18th, 1881), will long be remembered by Londoners. I do not think we here, in the valley of the Mole, shall soon forget the last half of the present month. Old inhabitants tell me they remember nothing like it since Murphy's frost. I can answer for no such weather here for nearly twenty-two years. We have, I believe, in this part of Surrey the unenviable notoriety of having recorded (through Mr. Steward of the Strand) greater cold than any other part of the south-east. It may be interesting to others to hear of our misfortunes. As a Latin poet has said, "*Suave mari magno*," &c.

"Sweet to see tossings on the sea,  
While we on land all safe may be;  
Not to delight in others' pain,  
But since escape is so much gain."

The happy inhabitants of warmer regions will endorse this when they read of 30°, 32°, and 33½° below freezing which I registered on the mornings of January 17th, 22nd, and 25th. We are about 200 feet above the sea, and my thermometer is a maximum and minimum of Mr. Steward's on a sheltered stand 4 feet above the grass. My readings are borne out by those of a neighbour on the opposite bank of the Mole. It is difficult to account for such extremes of cold, but low readings appear to follow the course of this river. Mr. Mawley of Croydon, a high authority in such matters, suggests "the cold air rolling down at night from the hills (the North Downs just above us) into the valley" later in the spring. I may have something to say if space is afforded me as to how the Roses have stood it, standards having had no protection. At present there is a little varied prospect of blacked branches, and plants apparently dead down to the snow line.—A. C.

GISHURSTINE.—You did me the favour to publish (page 65) the report of a very high professional gardening authority of his experiments with Gishurstine to keep boots dry. I have just

received an excellent opinion from an amateur—the well-known authoress, Miss Frances Power Cobbe—and shall be much obliged if you will give it space. Miss Cobbe writes: "To-day I sallied forth over swamps and morasses in Wisley Common for hours; and here I testify that though my boots were already rather worn, and last week decidedly let in damp, I have returned this evening with my feet warm and dry, as if I had never stepped but upon a wooden floor. Gishurstine is admirable."—THE INVENTOR OF GISHURST COMPOUND.

#### COMPARETTIAS.

THERE are now numbers of beautiful winter-flowering Orchids in cultivation, and with a moderately extensive collection little difficulty is experienced in maintaining a bright and satisfactory

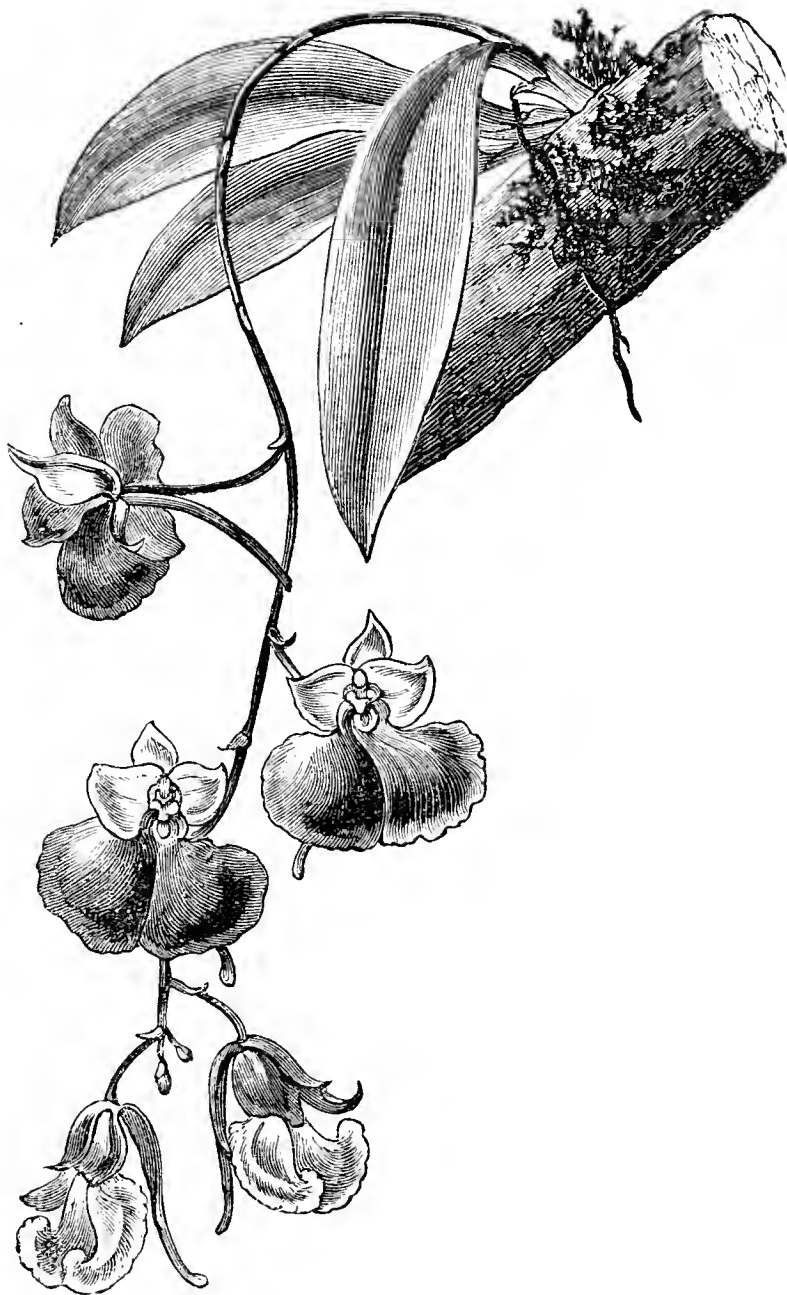


Fig. 23.—*Comparettia falcata*.

display in the structures devoted to such plants. The small genus now under notice is well known to many Orchid growers; and though the few species it includes are not entitled to rank among the most showy of their order, they possess several recommendations. The racemes are elegant, generally drooping, and bearing small but brightly coloured flowers that are produced in the latter months of the year, or from January to March. The plants are all epiphytal in habit, succeeding well on small blocks of wood suspended from the roof of a moderately warm house, but not where they are too fully exposed to the sun. In other respects the treatment they require is similar to that of most tropical epiphytal Orchids.

*Comparettia falcata*, the species represented in fig. 23, is one of the best known, and is seen in most metropolitan nurseries and in the chief collections of Orchids in the country. It produces a rather loose raceme of deep rose or crimson-coloured flowers from the base of the pseudobulbs, the scape usually being much longer than is shown in the cut, the flowers being borne near the



extremity. The labellum is the chief distinctive feature of the flower, it being strangely restricted in the middle. *C. rosea* is another pretty species with shorter and more compact racemes than that mentioned above, but it is much more rarely seen. *C. coccinea*, which has pale scarlet tinted flowers, is very attractive and free in flowering, particularly handsome specimens being occasionally met with.—R. L.

#### EARLY TOMATOES.

WHERE Tomatoes are held in high esteem—and they are annually gaining favour—they, like most other choice vegetables, are much valued early in the season. Last year we cut fruit from our spring-raised plants in April, and by the end of May we had abundance. At that time Mr. Godwin from Messrs. Dickson, Chester, and other visitors told me they had never seen finer crops of Tomatoes in pots, and they were sure this system of growing them was well worth being generally adopted. The plants which were so well in fruit then were raised from seed Mr. Coleman of Eastnor very kindly sent me to try, and a finer variety I have never seen. It might be described as an extra good variety of Trophy, but so much superior to the many "varieties" of that now out under different names that the public would certainly be the gainers were it sent out as an improved variety.

To have Tomato plants in fruit in April no time should now be allowed to pass before sowing the seeds. These are best placed in 3-inch pots. After filling the desired number of these with any rich soil two seeds should be placed on the surface in each and slightly covered. If the pots can then be plunged in a gentle bottom heat the plants will appear all the quicker, and then they should not be placed far from the glass, as drawn spindly plants are never so good as short-jointed robust ones, and all depends on the position in which they are grown. As soon as the plants are 2 or 3 inches high the weaker of the two should be drawn out. If plants are scarce pot this on, but do not neglect the one left in the pot, as it will make the best and earliest fruiting plant. When it is from 6 to 8 inches high it should be transferred to the fruiting pot. This may be either 8-inch or 10-inch size. For small corners the former may be used; where space is abundant the larger size is better. The fruiting pots must be well drained, and the soil employed must be good. Loam and cow dung are suitable, and these must be used in a rather dry state. The soil must be rendered firm, or the roots soon take possession of it, and they are liable to receive a check at any time from deficient supplies of water. They do not need bottom heat after being placed in the fruiting pots, but if they can be arranged on a shelf in an early vinery, Pine house, or plant stove where the heat is between 60° and 70° they will grow rapidly and soon make fine plants.

When they are about 1 foot high a stake 3 feet long is placed to each, and the stems are tied to this. When the plants are grown robustly they will show bloom by the time they are a foot high, and clusters of flowers will appear every few inches after this. Numbers of fruits will form on each of these, and by the time the plants are at the top of the stakes eighteen, twenty, or more fruit will be formed on each. This number is a good crop to begin with, and the point should be taken from each plant at this height, all side shoots removed, and little or no growth be allowed to be made until the fruits are swelling. At this time plenty of water and liquid manure must be given, and a side growth may be allowed to form occasionally to produce a bunch of bloom and fruit in succession.

As they grow quickly and may be trained any way, or cut-in to any extent without injury, it is an easy matter to cut all barren wood out and only leave that which will bear fruit. When the first leading growth has fruited and become exhausted a fresh one may be taken up from the bottom and be treated in the same way as the first until it comes into bearing, when the old one may be cut away. When this is done a good top-dressing should be given to assist the young growth. There is no secret in fruiting Tomatoes early, nor does it require a great amount of skill, if they are only grown in pots in a warm position near the glass and never allowed to carry more wood than what is bearing the fruit.—J. MUIR.

#### ROYAL HORTICULTURAL SOCIETY.

THE annual general meeting of the Society was held in the Council Room, South Kensington, at 3 P.M. on Tuesday, the 8th inst., the President of the Society, Lord Aberdare, in the chair. The following members of the Council were present:—Sir Trevor Lawrence, Bart., Major F. Mason, Sir Charles W. Strickland, Bart., Henry Webb, Esq. (Treasurer), Dr. Hogg (Secretary), Rev. Harpur Crewe, Dr. Denny, and William Haughton, Esq. There was a moderate attendance of members.

The proceedings commenced by Dr. Hogg reading the minutes of the last annual general meeting, and he also announced the names of twenty-eight ladies and gentlemen desirous of becoming Fellows of the Society, who were formally elected by a show of hands. It was announced that there were three retiring members of the Council—namely, Sir Henry Scudamore Stanhope, Bart., Lord Sudeley, and H. J. Elwes, Esq., and the Fellows recommended to fill the vacancies thus caused were J. T. D. Llewellyn, Esq., James McIntosh, Esq., and George F. Wilson, Esq.; Mr. John Lee and Mr. James F. West being appointed scrutineers of the ballot.

LORD ABERDARE then proceeded to briefly review the position and prospects of the Society, commenting on the serious effects unfavourable seasons had in recent years produced in the diminution of receipts, so that careful thought and attention had been rendered necessary to balance their accounts in a satisfactory manner. He then referred to the scientific portion of the Society's work, which he said some thought had been neglected, and it was owing to a desire to impart additional scientific interest to the fortnightly or monthly meetings of the Committees that the Rev. G. Henslow had been engaged to deliver a lecture on each occasion concerning the plants exhibited. These had given considerable satisfaction, and had been generally well attended, the lecturer having conveyed much useful instruction in an easy and intelligible manner. The President then stated that to gain an adequate idea of the advance made by the Society during the past year it would be necessary to compare the financial position of the Society in the two previous years with that of 1880. He referred to the chief causes which had reduced the receipts—namely, the exhibitions held by the Royal Botanic Society and at the Crystal Palace, the former internal dissensions of the Society, the falling-off of the Fellows, and in some degree the general depression of trade. But there were now better prospects, for one very healthy sign was the great increase in the number of Fellows. In 1878 £6101 were expended, and the receipts fell short of this by £162. In 1879 the expenditure was increased, on the theory that if you do not sow you cannot expect to reap; but the result was not encouraging, for while the expenditure amounted to £7198, only £6542 were received. In 1880, however, they had felt bound to reduce their expenses in every possible way, although it was admitted that the exhibitions and meetings had been even finer than usual, notwithstanding the unfavourable weather. The income for the past year was £6820, and the expenses £6943, being a balance against the Society of £123, which was due to legal expenses incurred in the Chancery suit. This he considered a steady advance, as was apparent from the facts he had already stated. In commenting upon the prospects of the case in Chancery, he remarked that the debenture holders were now admitted as defendants; and though there was still considerable uncertainty as to when it would be settled, he trusted that the decision would prove fair and satisfactory to all concerned. He considered the outlook of the Society encouraging, and although some considered the Society doomed, he thought it might be safely described as—

"Oft doomed to death, but fated not to die."

He then moved the adoption of the report, which was seconded by Mr. John Lee, and carried unanimously.

On the motion of Mr. William Haughton, duly seconded and carried unanimously, a Fellow of the Society sentenced to five years' penal servitude in 1876, and now at liberty, was expelled the Society, he having refused to retire. It was then stated that the officers and proposed members of the Council had been elected, and the meeting concluded with a unanimous vote of thanks to Lord Aberdare.

#### REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF FEBRUARY THE 8TH, 1881.

THE Council congratulate the Fellows on the steady improvement of the Society during the past year. The number of Fellows and the receipts from all sources have increased.

The efficiency of the Chiswick Garden has been maintained during the past year, and an increasing interest is taken by the Fellows and visitors in the work that is carried on there.

Under the direction of the Fruit and Floral Committees the experiments in the garden at Chiswick have been conducted with favourable results, which have been received by horticulturists both at home and abroad with the interest and approval which attach to the scientific operations of the Society. In the vegetable department collections of Aubergines, Capsicums, Brussels Sprouts, and Parsnips have been grown, and the examination of them enabled the Committees to correct erroneous nomenclature and to discard any varieties that are worthless, while those of superior merit have been brought into prominence. Collections of Pelargoniums, Fuchsias, Gloxinias, Begonias, Pompon Dahlias, and a number of miscellaneous plants have also been examined. For some time past special attention has been given to the varieties of tuberous-rooted Begonias as decorative plants; and Mr. Barron, the Garden Superintendent, has succeeded in producing a number of varieties, which have created much interest and been greatly admired. Ten of the seedlings raised by him have received first-class certificates.

The Society now possesses, perhaps, the most extensive and complete collection of the species and hybrid forms of the genus Pelargonium that is to be found in this country, and these interesting plants have been objects of admiration and curiosity to a large number of visitors to the garden and the exhibitions.



A desire has been shown by the inhabitants of the neighbourhood of Chiswick Garden for the resumption of flower shows there. During the past year a local organisation was formed, which received the support of the Council, and a very successful exhibition of flowers was held for the benefit of the West London Hospital, the garden being thrown open to the visitors. The profit derived from this Exhibition realised upwards of £80, which was handed over to the hospital. It is in contemplation to hold another exhibition this year, and a similar organisation has been formed to carry out the arrangements, the object being to encourage the horticulture of the district and to strengthen the Society.

Some rearrangement of the garden has been deemed necessary, and a considerable portion which was formerly occupied with bedding plants has been converted into a broad lawn.

The crops of outdoor fruit are very short, the trees not having recovered from the injuries of the disastrous season of 1879. Peaches on the open walls were very scarce. Pears were more numerous and generally of good quality, but the crop of Grapes in the large conservatory was not so good as in previous years. The Vines in the long glass wall, which were planted two years ago, have been a great source of attraction from the luxuriance of their growth and the high development of their fruit, which illustrate the excellence of Gros Colman and Alicante as late varieties.

It being deemed advisable to discontinue the cultivation of orchard-trees, the system having been thoroughly tested and established, it is proposed to plant the large orchard house with a collection of Tea Roses, and the Council will be happy to receive any contributions in plants which the Fellows may wish to make towards this object.

The sales of garden produce during the past year amounted to £641 1s. 10d., being £17 in excess of last year, and the total receipts of Chiswick Garden amounted to £709 4s. 1d., being nearly £100 in excess of last year.

The distribution of plants and seeds to Fellows far exceeded that of any previous year; 1,020 Fellows were supplied with 19,622 plants and 8,424 packets of cuttings of fruit trees, and 40,559 packets of seeds.

The Society is indebted to many of the Fellows for liberal donations of seeds and plants to the garden, among whom are J. T. D. Macintosh, Esq., Col. R. Trevor Clarke, H. H. Gibbs, Esq., Sir Charles Strickland, Bart., G. T. Clark, Esq., Sir Bartle Frere, Dr. Regel of St. Petersburg, for bulbs and hardy plants; Mr. Herbst of Richmond, for three hundred Palms for distribution; Sir George Macleay, Baron Mueller, &c.

At South Kensington the fortnightly and monthly meetings of the Scientific, Fruit, and Floral Committees have been well attended, and the lectures which have been delivered by the Rev. George Henslow at the general meetings have been most attractive and have given great satisfaction.

The Great Summer Show, which extended over four days, was one of the finest ever held in the garden, and but for the wet weather on the first two days it would have proved financially a great success. The special thanks of the Society are due to the exhibitors, and especially to the leading nurserymen, for their never-failing support of the Society.

The Auricula Society's Exhibition in April was very well attended, and excited great interest.

The Society's Rose Show and the Pelargonium Society's Show were held in conjunction, and were in every respect a success, the Show of Pelargoniums being the best hitherto held.

The Carnation and Picotee Society's Show and the Exhibition of the British Bee-keepers' Association, which were held simultaneously, attracted many visitors. Besides these there were Exhibitions on Whit-Monday and on the Bank Holiday in August. The former, for flowers grown specially for Covent Garden Market, was visited by upwards of 19,000 persons; and the latter, for flowers grown by artisans and cottagers, was attended by 11,370. The Council, being desirous of fostering and encouraging the love of flowers among the masses, have made arrangements to continue the Great Summer Show this year over Whit-Monday and Whit-Tuesday.

The conversazione held on the 26th of May, and the evening fête on the 21st of July, were numerously attended, and gave great satisfaction to the Fellows and visitors.

The garden at South Kensington has been maintained in the highest state of keeping which the means of the Society allowed. Some of the larger trees, which were overcrowding those of greater value, have been removed, and a greater extent of grass lawn has been obtained. The Council trust that the returning prosperity of the Society will enable them to make it still more attractive.

The game of lawn-tennis has become very popular in the garden, and every facility is afforded to the Fellows and their friends to indulge in that healthful exercise.

The action between Her Majesty's Commissioners and the Society is still pending in consequence of the opposition of the plaintiffs, the Commissioners, to the debenture holders being made parties to it. The Court of Appeal, to which the plaintiffs carried the point, unanimously decided against their contention that the debenture holders had no right to be heard, and ordered Mr. Percival De Castro as their representative to be added as a defendant. This decision gave Mr. De Castro the right, of which he has availed himself, to counterclaim against the plaintiffs, and all questions between the Commissioners, the Society, and the debenture holders can now be decided.

As was last year explained to the Fellows, the presence before the

Court of the debenture holders was absolutely necessary to relieve the Society from the grave risk which it would have incurred if it had voluntarily surrendered the South Kensington Gardens, or left it open to the debenture holders to contend hereafter that it had not raised in the action every defence open to it, and so occasioned the destruction of their security. The Council have no reason to anticipate further delay in the proceedings, and hope the case will come on for hearing soon after the return of Mr. Justice Fry from circuit.

During the past year 238 free monthly tickets have been issued to students in the Science and Art Schools, with permission to sketch in the gardens and conservatory.

The Society has lost during the past year 29 life Fellows and 32 annual Fellows by death, and 82 by resignation. 207 new Fellows have been elected during the year.

The roll of Fellows now consists of—

808 life Fellows.  
435 Fellows paying £4 4s. annually.  
860 " " £2 2s. "

2103

The number of members paying one guinea annually is 87.

#### BALANCE SHEET, 31ST DECEMBER, 1880.

DR.	£	s.	d.
To Sundry Creditors on open Account .....	830	10	8
" Life Composition Account .....	930	16	9
" Additional Debenture (C. J. Freake) .....	5,000	0	0
" Legacies received .....	1,887	8	9
" General Revenue Account—Balance carried forward.....	1,278	11	6
	£9,927	7	8

CR.	£	s.	d.
By Capital Expenditure Account .....	7,130	12	2
" Annual Subscriptions—Outstanding .....	351	15	0
" Sundry Debtors—Garden Produce.....	120	15	3
On open Account .....	126	9	3
	247	4	6
" Investment—3 per cent. Consols.....	1,892	11	3
" Cash at Bankers .....	239	4	4
" Petty Cash in hand .....	66	0	5
	305	4	9
	£9,927	7	8

We have examined the above Accounts with the Books and Vouchers, and we find the same correct—

JOHN LEE,  
JAS. F. WEST, } Auditors.  
R. A. ASPINALL,

January 29, 1881.

#### ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1880.

EXPENDITURE.		£	s.	d.	£	s.	d.
To Establishment Expenses:—							
Salaries .....		340	18	8			
Wages .....		180	2	0			
Printing, Stationery, and Cards .....		207	4	11			
Postages .....		50	14	11			
Gas .....		32	9	7			
Miscellaneous .....		113	8	0			
Law Charges .....		125	0	0			
					1,049	18	1
" Special Expenses in relation to Horticulture:—							
Journal .....		43	8	11			
Fruit and Floral Committees.....		83	7	1			
Grants in aid .....		30	0	0			
					161	16	0
" Chiswick Gardens Expenses:—							
Rents, Rates, Taxes, and Insurance .....		296	5	3			
Labour .....		1,061	1	10			
Implements, Manure, &c. ....		178	16	2			
Coal and Coke .....		182	4	0			
Repairs .....		196	4	6½			
Trees, Plants, Seeds, &c.....		55	0	9			
Superintendent's Salary.....		150	0	0			
Water .....		16	18	5			
Miscellaneous.....		128	3	1½			
					2,264	14	1
" Kensington Gardens Expenses:—							
Rates, Taxes, and Insurance .....		510	10	1			
Superintendent's Salary .....		100	0	0			
Labour .....		460	18	3½			
Repairs.....		190	7	9			
Coal and Coke.....		65	8	6			
Implements, Manure, &c. ....		32	13	3			
Water .....		42	8	4			
Reading Room .....		26	5	9			
Bands .....		20	5	0			
Miscellaneous.....		51	7	2			
					1,500	4	1½
" Conversazione and Evening Fête .....					415	6	6½
" Exhibitions:—							
Advertising .....		417	17	9			
Prizes and Medals .....		658	11	6			
Bands .....		103	18	6			
Superintendent of Flower Shows.....		25	0	0			
Labour .....		127	4	11			
Judges' Fees .....		18	18	0			
Sundries .....		199	17	5			
					1,551	8	1
" Balance to General Revenue Account .....					437	12	10
					£7,380	19	9

INCOME.		£	s.	d.
By One-fifteenth Life Compositions as at 1st January.....		560	14	8
„ Annual Subscriptions .....		3,897	12	0
„ Exhibitions .....		1,288	5	6
„ Conversazione and Evening Fete.....		463	2	6
„ Daily Admissions .....		258	17	4
„ Garden Produce.....		665	12	1
„ Packing Charges .....		43	12	0
„ Miscellaneous Receipts .....		140	16	10
„ "Davis Bequest"—Interest appropriated under provisions of Trust towards Prize Money .....		62	6	10
		£7,380	19	9

We have examined the above Accounts with the Books and Vouchers, and we find the same correct  
 JOHN LEE,  
 JAS. F. WEST, } Auditors.  
 R. A. ASPINALL,  
 January 29, 1881.

GENERAL REVENUE ACCOUNT, 31st DECEMBER, 1880.		£	s.	d.
DR.				
To Balance carried forward as per Balance Sheet .....		1,278	11	6
		£1,278	11	6
CR.				
By Balance of Revenue Account brought forward 1st January, 1880 .....		840	18	8
„ Annual Revenue Account—Balance for the year 1880 .....		437	12	10
		£1,278	11	6
By Balance carried forward .....		£1,278	11	6

We have examined the above Account with the Books of the Society, and we find the same correct  
 JOHN LEE,  
 JAS. F. WEST, } Auditors.  
 R. A. ASPINALL,  
 January 29, 1881.

### COTTAGE GARDENING.

RIPE fruit is most wholesome food, as pleasant to the taste as it is nourishing, and well would it be if it were more often seen upon the poor man's table. Some years ago I had occasion to consult a London physician about the state of my health; he questioned me closely about my diet, and strongly advised me to take more vegetables and fruit than I had been accustomed to. "If possible," said he, "always let stewed fruit and rice form part of your dinner." Now that is a dish frequently seen upon the tables of the rich, and yet it is emphatically a poor man's fare if cost be any guide in such matters, for the rice and sugar required for a large dish need not cost more than 2d. The fruit should of course be obtained from the garden, and among such fruit the Strawberry ought certainly to hold a leading place, for its culture is easy, its crop certain and abundant, and it can be as well grown along the sides of the garden paths and under the partial shade of trees as if it were out in the middle of the garden. Only treat it well and it will repay all your pains. Dig the soil deeply, mixing plenty of dung in it. Obtain young plants in August if possible, plant them 1 foot apart in the rows, and if you can spare space for a bed let the rows be 2 feet apart. Give them plenty of water, or better still soapsuds and slops from the cottage; keep down weeds, cut off all runners as soon as they appear, and your plants will grow so freely and become so strong that you will have a good crop of fruit in ten or eleven months from the time of planting. But, remember, if you delay planting till the autumn you will have no fruit next season, and in any case a full crop cannot be obtained till the second season. After the fourth season the plants should be destroyed as soon as the fruit is picked, and young plants again employed. So, in order to keep up a full supply of fruit, it will be well to have two beds or two rows, replanting one every second year; for although old plants will continue to bear fruit for many years, yet it comes smaller, some of the plants die, and the rows gradually appear as ragged as they are unprofitable. You may continue replacing old plants with young ones for a lifetime provided you enrich the soil regularly with plenty of dung. The best variety for a cottage garden is Garibaldi, better known among gardeners as Vicomtesse Héricart de Thury; but that is much too long a name for us, and I may tell my cottage friends that I have known many excellent gardeners who could grow it well and yet were quite unable to pronounce the long French name, so we may very well be excused from attempting it. Another excellent sort, a great favourite of mine, is Marguerite, having very large fruit in great abundance; and if you desire a variety to win prizes with, plant a dozen or two of Cockscorn, and its fruit will astonish you and save the time of the judges at your flower show, for what can they do but ticket its great fruit with "First Prize?"

Raspberries are much more common in cottage gardens, but the varieties grown are often inferior. I can strongly recommend Prince of Wales for its long stout canes and heavy crops of large red fruit. Unlike Strawberries, Raspberries if well planted and well cared for continue bearing in full perfection for many

years. Be sure and stir the ground two spits deep, making it as rich as you can with dung and road scrapings. One now will be enough. Plant in November strong canes shortened to 2 feet. Do not dig among the roots in after years, but lay a little dung upon the soil above the roots, and pour soapsuds or sewage over it as often as you can in summer while the fruit and canes are growing.

Plant Gooseberries as near the cottage as you can to keep bullfinches from pecking out the buds in early spring. It is well not to prune them till you see if the buds are safe, which they will be when they are just bursting in spring. If you are not troubled by these birds by all means prune early, for late pruning is apt to weaken the bushes. I have grown a great many sorts of Gooseberry, and think the best two for our purpose are Early Sulphur and Red Warrington, both good croppers of excellent flavour, with medium-size fruit. Warrington is especially valuable for preserving.

Of Currants, Knight's Large Red and Red Dutch are the best of that colour; White Dutch among whites; and Lee's Prolific Black, a new variety as much superior to older sorts. Currants do not thrive in a poor thin soil, and are not a profitable fruit for a cottager unless he can give them a deep rich soil: when that can be done no fruit is more profitable, especially the Black Currant.

Most old cottage gardens contain a Quince tree, and of other fruits there should be a Cluster Damson, Rivers' Early, and Victoria Plums; and if Cherries are planted take May Duke and Kentish.

All the varieties of fruit I have named and chosen from a large collection, and may be relied upon as suitable for most gardens. It is always well to grow really good fruits, especially in small gardens, where every foot of space should be turned to good account. To those of my cottage friends who may feel puzzled how to procure them, I may very confidently say that most gentlemen will very gladly encourage such a praiseworthy effort by giving them surplus cuttings or plants. Better still if they are obtained by the exercise of a little self-denial and thrift. Plants of bush fruits and Strawberries only cost a few pence each, fruit trees a shilling or two. The latter are, however, often raised by the cottager himself. I know a man who has an acre of Apple trees, every one of which he raised by sowing Apple pips for stocks and grafting them with good varieties.—EDWARD LUCKHURST.

### CUTTING DOWN YOUNG VINES AND PEACH TREES.

ALMOST all amateurs in commencing Vine culture wish their young Vines to come into full bearing as soon as possible. Opinions differ as to the best way of doing this; different systems have been and are being followed to compass this end. I remember hearing of an amateur in Hertfordshire some thirty years ago cutting down his young Vines to the ground for four years in succession, and thus obtaining stronger rods or canes every season till his houses were filled with vigorous Vines. The results were highly satisfactory, and his crops of Grapes were second to none in England at the time. Another large grower of Grapes in Cheshire does not cut down young Vines once. On planting them he ties the trailing canes up to the full length of the rafters and allows them to remain so. Men of experience would naturally condemn the practice of this Cheshire grower. Well, what has been the result? Two houses 60 or 80 feet long were planted with Muscats, and a third house the same length was planted with Black Hamburgs. In the first season the Vines broke at the tops of the canes only, and 6 or 7 feet from the ground up remained naked and shootless for twelve months. The shoots at the tops of the Vines in the Black Hamburg house carried and ripened large bunches of good Grapes. The Muscats did not bear well the first season. All the Vines were planted in very rich borders composed of manure and decaying vegetable matter. Second season the Vines broke well from top to bottom, and made excellent wood and bore some fruit. Third season full crops of good Grapes. Yesterday I walked through the houses and found the Vines looking well, and the Black Hamburg Vines were in leaf, with a good show of fruit already visible. This Cheshire grower has in an unorthodox fashion succeeded capitally. His rich border did more for his Vines than his skill in growing them.

I think there is a better method of filling houses with good Vines than either plan now noticed. The common practice of cutting young Vines down to the ground on being planted cannot be too strongly recommended, and if they are planted 4 feet asunder one shoot only should be taken from each Vine, retaining no fruit the first season. Cutting the Vines down to the ground a second time is doubtless a waste of power; cutting them down to midrafter is better, so that every bud will produce a shoot.

The shoots of these young Vines generally show fruit, and are capable of bearing it. Is it wise to let them bear? In order to have a house full of strong fruit-bearing canes I think no fruit should be taken the second season, that all the bunches of flowers should be removed as soon as seen, and the shoots left to give strength and constitution to the Vines. This is much better than cutting back the Vines to the ground a second time. The main shoots have to run from midrafter to the top only, where they are stopped, and then they send out lateral shoots, which assist the Vines; thus, by the end of the second season from planting houses are filled with excellent rods capable of bearing full crops of Grapes from bottom to top on the third year from time of planting; of course it is possible to take half a crop of good Grapes off Vines the second year from planting, but it cannot be done without checking the growth and development of the Vines.

The practice of cutting down young trained Peach and Nectarine trees—so common forty years ago—has been abandoned long ago by thoughtful men. The object aimed at in cutting down the young trees was to obtain plenty of shoots to begin with. Peach trees, like Gooseberry bushes, break at every bud, and therefore have to be disbudded from the first. Cutting down Peach trees, to say the least, is not good practice; generally speaking a season is lost and often harm is done as well, for young Peach trees are apt to produce shoots rather too strong on being planted in fresh soil. A rich border so good for young Vines does not answer well for young Peach trees.—A. PETTIGREW.

#### SOLDAT LABOUREUR PEAR.

"SOLDAT LABOUREUR I think well of; its growths are Poplar-

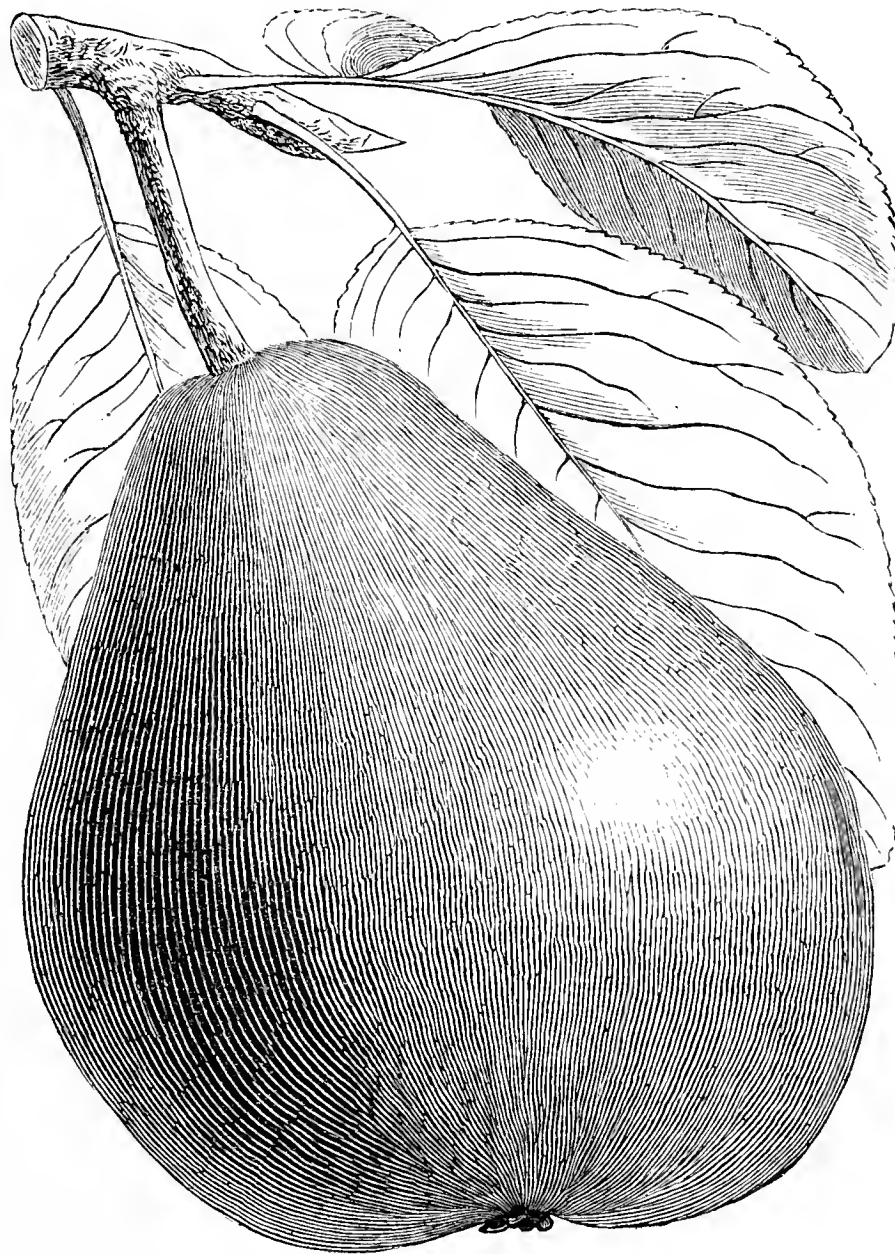


Fig. 24.—PEAR SOLDAT LABOUREUR.

like and pleasing, it does not canker, it fruits regularly, and with artificial heat it ripens well." Thus wrote "WILTSHIRE RECTOR" in our last volume, and his remarks were, if brief, sufficiently commendatory to lead to inquiries respecting the variety. We answer them by publishing the annexed engraving and description of the fruit. One correspondent has not comprehended the meaning of "WILTSHIRE RECTOR'S" reference to the fruit "ripening well with artificial heat." It simply means that the fruit, if removed from a cold fruit room into a warmer temperature, is of better quality than if left to ripen in a cold place—a plan we know to be an excellent one and worthy of extensive adoption. The description of this clean-growing and good Pear is as follows:—Fruit large,  $3\frac{3}{4}$  inches long and 3 inches wide, oblong obovate, narrowing from the bulge both towards the eye and the stalk. Skin pale lemon yellow, marked here and there with tracings of russet, and completely covered with minute russet dots. Eye large, slightly closed, with long acuminate segments, and placed in a shallow depression. Stalk an inch long, inserted by the side

of a fleshy swelling in a narrow cavity. Flesh yellowish white, buttery, melting, and very juicy, rich, and sugary, having somewhat of the flavour of the Autumn Bergamot.

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 18. NEW SERIES.

STRONGLY as the horticulturist may feel inclined to object to weather of such severity as that which has prevailed during the greater part of the past month, he would regard it with less dislike if he knew it was generally destructive to insect foes of the garden. Accurate and extended observation proves that extreme cold is not as harmful to insects as we might suppose. Other creatures—quadrupeds and birds, for example—suffer much, but insects appear to endure low temperatures better than moisture. Caterpillars of those species that hibernate in that condition have been picked up in frosty weather so rigid as to chink against glass like pebbles, and yet they have afterwards



revived. It is in the egg and the larva stages that insects pass through the winter most successfully; pupæ are apt to die from a variety of causes, so are the perfect insects that live from autumn to spring. The beetles that we have been recently considering, and especially the weevils, are a sturdy race, yet there are differences. Doubtless when there are two species of similar size and habits, and one is rare while the other is abundant, it may be conjectured that the scarce species is either more delicate or specially attacked by parasitic enemies.

Of these weevils already several thousand species have been fully made out, though our British species are limited to a few hundreds. We at once recognise them by the extension of the head into a snout, and by the antennæ set in front. Some species are minus wings, the majority possessing them are slow flyers. Nearly all have the habit of falling readily when alarmed from any substance they are eating or crawling upon. Most of the larvæ are hidden feeders, doing a greater amount of mischief than the mature beetles. White and fleshy grubs, legless, and with small heads, we might think them harmless were it not for evidence to the contrary, proving how effective is the action of their muscular and trenchant jaws. The weevils are subdivided into two groups; the first has straight antennæ, the second has them elbowed or bent.

Proceeding to examine some of the species in this family we commence at the genus *Bruchus*, of which we have eight native species. It is a speculation of several naturalists that none of these are truly British, but that they were introduced with foreign corn, Peas, and Beans; if so, they have now become quite at home in these islands. Every gardener and most cooks know too well the larva of the Pea weevil (*B. Pisi*), and as, in the general way, each one consumes but a single Pea, we can fancy how numerous they must be in cases where a whole crop has been ruined by them. The little brown and white beetles are about a tenth of an inch in length, so that, though it has been recommended to look out for them at the flowers to which they resort in the summer, this is not easy of accomplishment. As, however, the larvæ turn to pupæ in the pods, we have them at our mercy towards the autumn, when it is sometimes necessary to burn whole rows that have been infested. *B. granarius* is another very familiar species, darker than the preceding, but similar in size; this species visits both Peas and Beans, and unfortunately does some injury to the dried seeds as well as to the fresh crop, its vitality being strong. All Leguminous plants are liable to the attacks of one or other of the *Bruchi*, nor do they limit themselves to the species supplying us with food. The larger species called *B. villosus* comes out early in the year, and seeks the golden bloom of the Furze, placing its eggs amongst the young seeds just as they are forming. The result is, that instead of seeds there is to be found only heaps of frass, and more beetles come out to renew the attack during the autumn. Abroad there is found a *Bruchus* bold enough to attack such a large fruit as the Cocoa-nut. Still less in size than the insects of the genus *Bruchus* are those belonging to *Apion*, of which we have several score of British species. From the shape of the tiny body resembling that of a Pear has arisen the name they bear. Their limbs are so slender that the naked eye can hardly perceive them. The Clover is infested not merely by one, but by numerous species of the genus, especially by *A. flavipes* and *Trifolii*, and by means of a net swarms of these may be swept off this plant when it is in flower. They may also be found plentifully upon the flowers in hedge-rows near Clover fields, to which they convey themselves by means of their legs, for their elytra enclose no wings. In some seasons these weevils affect noticeably the due development of the seeds. Others of the genus have been discovered in Peas and Beans, operating upon these as do the *Bruchi*. A few bore into the roots or stems of plants, such as *Apion radiolum*, a foe to the Hollyhock, the proceedings of which explain unpleasantly to the gardener why some of his choice plants decline. This beetle, which is of a deep green, almost black colour, insidiously pierces holes here and there in the stems of Hollyhocks, within each of which holes an egg is placed. The larva feeds upon the pith, and then turns to pupa in its hiding place. One of the largest *Apions* is *A. carduorum*, about a sixth of an inch long, with steely green elytra, and a frequenter of Thistles.

From these we proceed to a very distinct family called the *Brachyderidae*, from the circumstance that the broad head is set close upon the thorax, making them short-necked. We are still amongst the enemies of the Peas, for *Sitones lineatus* the Striped Pea Weevil, attacks the young leaves of the plant at the very period when it can least bear injury from insects, having enough to do to sustain itself in our usually ungenial spring. The beetles, emerging in autumn, hide during winter where they best can, and re-appear as soon as the Peas are ready for them. The

small jaws of the beetles leave conspicuous traces upon the leaves, while their nocturnal habits are much in their favour; but they have other enemies than man. Our Scotch friends, with a freak of imagination, name the species the cuddly or donkey from its grey hue and its protruding ear-like antennæ. By a singular eccentricity of habit some of the weevils in this family form cocoons of open threads of silk, within which the pupa reposes. These are chiefly in the genus *Cionus*, and the larvæ occur on the leaves of the Mullein and plants of the natural order to which that belongs.

It might be said of the species in the genus *Cionus*, that they are, like one or two *Apions*, in some degree useful, since their operations have a tendency to check the increase of Thistles. Almost the biggest of our weevils is *C. nebulosus*, approaching an inch in length, the elytra have ashen-grey scales which are easily rubbed off, thereby altering the appearance of the markings. It is rather scarce; but a commoner species, *C. suleirostris*, has been perceived to kill Thistles just before the period of flowering, the larva burrowing in the root, or lower part of the stem. One of the species, however, *C. Linariæ*, has, however, occasionally been taken in gardens, preying upon various *Antirrhinums*.

We close this article with a brief reference to the genus *Phyllobius*, containing species which infest fruit trees. Here again the damage is done by the beetle, not the larva. *Phyllobius oblongus* is a long-bodied slim beetle, reddish brown, and having long antennæ. May is their season of activity, when they visit the young leaves of the Apple by preference, though they are also seen at times upon the Apricot, Peach, and Plum. Another species, *P. Pyri*, is more attached to the Pear, the leaves of which it bites during April; this is similar to the preceding, but of a dark brown. These weevils are not excessively troublesome, yet when they have located themselves in an orchard it is almost impossible to entirely destroy them.—J. R. S. C.

## NOTES AND GLEANINGS.

At the Annual General Meeting of the Royal Horticultural Society held at South Kensington on Tuesday last, the Right Hon. Lord Aberdare in the chair, the following candidates were duly elected Fellows—viz., John Capron Bigg, Douglas Brown, Miss Emily Bunbury, Major Ellis, James Charter, Joseph Cheal, J. J. T. Somers Cocks, Mrs. W. J. R. Cotton, Lady Dennison, Rev. J. F. Fitzwygram, Mrs. James Foster, Mrs. Gardiner, Mrs. Hamlin, Mrs. Le Champion, Joseph Little, Mrs. Charles Mercer, Louis Nathan, J. C. Nelson, Arthur Parson, Amos J. Perry, Benjamin Piercy, Henry Potter, Major W. Salmond, Octavius Toogood, Mrs. B. G. Wilkinson, J. R. Worcester, Miss A. M. Worcester, and Colonel J. Copley Wray.

— A MARKET GARDENER writing upon PITHY CELERY says, "I save own seed and select it most carefully, as it is difficult to purchase good seed. I grow two or three acres of Celery, and no matter how dry the season I never see a hollow stick and rarely a short one, and yet for market growers to attempt to supply water would be absurd. Three things are needful—a good variety, plenty of decayed manure, and good cultivation."

— REFERRING to our illustration of *IMANTOPHYLLUM CONCINNUM* in last issue, a correspondent writes—"There is no doubt an important future for it and its allies. Some of the Ghent nurseries have raised a great variety from seeds; at Van Geert's in particular we saw quantities of young hybrid plants, many of which had been flowered, and from their splendid character any ordinary price had been refused."

— "J. L." sends us a report of the FROST IN LEICESTERSHIRE, in which we observe that the lowest temperature registered was  $2\frac{1}{2}^{\circ}$  below zero on the 15th ult. He also states that although *Maréchal Niels* and other Roses were all covered with mats, he fears by their appearance that they will be cut down to the ground again. Cabbages are all killed and many of the Broccoli.

— WE are informed that a meeting of the Executive Committee of the REIGATE ROSE ASSOCIATION was recently held at the house of the active President, G. Baker, Esq., when it was determined to recommend that the annual Show be held at Reigate on Tuesday, July 5th, 1881.

— "W. J. M." writes—"Will some of your correspondents state how their OUTDOOR VERONICAS fared during the late frost, such as *V. Hulkeana*, *V. decussata*, *V. salicifolia*, and *V. pinguifolia*, as I am collecting information in reference to nominally hardy, half-hardy, and tender shrubs that are usually grown in open borders?"

— ONE of the grandest displays of PHALÆNOPSIS SCHILLERIANA that has ever been produced in this country may now be seen in the nursery of Messrs. J. Veitch & Sons at Chelsea. When it is stated that there are nearly five hundred flowering spikes and quite eighteen hundred expanded flowers in one house, some idea may be formed of the striking and charming effect produced. The plants are mostly small, having only been imported last year, and they are grown in small pots, saucers, and baskets, some on the stages, and others suspended from the roof. The foliage is as fine in its way as the flowers, and the healthy rope-like roots are such as Orchid growers delight to see. Both as a floral spectacle of extreme richness and as an example of superior culture the collection is alike remarkable, and is certainly worth a long journey to witness. There is a great difference in the tints of the varieties, some being extremely soft and others rich, while many of the blooms are of great size and substance, and altogether the display is magnificent and unique. The plants will remain in beauty for another week or ten days, fogs permitting.

— IN another house in the nursery we were fortunate in seeing one of the finest NEW CALANTHE that has ever come under our notice—*C. Sandhurstiana*. This was raised and grown by P. H. Gosse, Esq., F.R.S., of Sandhurst, Torquay. It was the result of a cross between *Limatodes rosea* and *Calanthe vestita*. One of the spikes contained nearly fifty flowers, but they were so closely set on the stem and all round it that it was difficult to count them. The prevailing colour of the richer form was rich rosy crimson, the others being a few shades lighter. Mr. Gosse has been fortunate in adding a variety of such striking merit to this valuable genus of terrestrial Orchids.

— THE increased and growing EXPORT APPLE TRADE IN AMERICA has, says the "American Cultivator," been larger than ever before, amounting to 425,000 barrels in 1880, against 176,000 barrels for the previous year. The bulk of the Apples exported have been of the Baldwin variety, and many of them have come from New Hampshire, where the crop was especially large and of excellent quality last season. Some farmers in that State have realised handsome sums from their Apple orchards.

— MR. ALEXANDER ANGUS, who for the last four years has been foreman in the fruit department of the Royal Horticultural Society's Gardens, Chiswick, has been appointed gardener to Chas. H. Wilson, Esq., M.P., Warton Priory, Pocklington, Yorkshire; and Mr. ROBERT CASTLE, late gardener at Derwent Lodge, Kensington, has succeeded Mr. W. Iggulden as gardener to Captain Wingfield, Orsett Hall, Romford, Essex. MR. ORCHARD, late gardener to F. W. Harris, Esq., Coombe House, Croydon, has been appointed gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston-on-Thames.

— IN the Orchid house at Kew may be seen a very fine example of DENDROCHILUM GLUMACEUM. It is now making a fresh set of pseudo-bulbs, and each growth or pseudo-bulb bears a beautiful arched spike of flowers—altogether no less than

fifty-two spikes. The individual flowers are not very showy, but when all are fully expanded the plant is very elegant. The colour of the flowers are creamy white, but what they lack in colour is more than balanced by the delicious spicy perfume they exhale. The flowers last at least three weeks in good condition, thus rendering the plant very desirable. It thrives well at Kew potted in fibry peat and sphagnum moss.

— SIR ROBERT CHRISTISON, BART., recently read a paper before the Edinburgh Botanical Society on THE GROWTH OF WOOD IN 1880, which contained a description of several interesting observations. It appears that the growth was even less than in 1879, deciduous trees, except Oaks, being most affected, and evergreen Conifers least. The small extent to which the growth of Oaks, particularly the Hungary Oak, had been influenced, was stated to be very remarkable. In some further observations upon the season of growth in trees, it was remarked that with fine deciduous trees in fine seasons the growth of wood was nearly confined to the months of June, July, August, while the same number of evergreen Conifers commenced growth a month earlier, but concluded it about the same period.

— MR. WALTER HILL, Director of the Brisbane Botanic Garden, writes as follows upon the uses of the CASUARINAS or Beefwoods of Australia:—"Casuarina equisetifolia (Swamp Oak).—Found growing in great abundance near salt-water marshes and inlets. The wood is coarse-grained and beautifully marked. It is used for purposes where lightness and toughness are required. Casuarina torulosa (Forest Oak or Beefwood).—A small tree, occupying large tracts of land in the open forest. The timber is much used for fuel. It is close and prettily marked, and gives handsome veneers. Casuarina glauca (The River She-Oak).—A robust tree of general occurrence on the borders of rivers and creeks. The timber is strong and tough, used for staves and shingles. Casuarina Cunninghamiana (Scrub She-Oak).—A small but handsome tree; timber hard, close, and prettily marked."

— WE have received Part 24 of the work on "FAMILIAR GARDEN FLOWERS," now being issued by Messrs. Cassell, Petter, Galpin, & Co. It contains coloured plates of *Narcissus incomparabilis* and *Tropæolum peregrinum*, accompanied by interesting descriptive and historical notes.

#### THE COMPASS PLANT.

IN the "Botanical Magazine" for January Sir Joseph D. Hooker gives the following interesting particulars concerning the Compass Plant of America (*Silphium laciniatum*), of which many remarkable and even exaggerated accounts have been published lately.

This noble plant was introduced into Europe in 1781 by M. Thouin, and flowered for the first time in the Botanic Garden of Upsala in Sweden. It has been in cultivation in Europe ever since, though its name and fame as the Compass Plant of the prairies is of comparatively modern date, it having before that borne the popular names of Turpentine Plant and Rosin-weed, except amongst the hunters and settlers in the western States. With regard to the history of its reputed properties as an indicator of the meridian by the position of its leaves, I am fortunate in having recourse to my friend Professor Asa Gray, now in England, who has most kindly furnished me with the following very interesting account of this matter:—

"The first announcement of the tendency of the leaves of the Compass Plant to direct their edges to the north and south was made by General (then Lieutenant) Alvord, of the U.S. army, in the year 1842, and again in 1844, in communications to the American Association for the Advancement of Science. But the fact appears to have long been familiar to the hunters who traversed the prairies in which this plant abounds. The account was somewhat discredited at the time, by the observation that plants cultivated in the Botanic Garden at Cambridge, U.S., did not distinctly exhibit this tendency. But repeated observation upon the prairies, with measurements by the compass of the directions assumed by hundreds of leaves, especially of the radical



ones, have shown that, as to prevalent position, the popular belief has a certain foundation in fact. The lines in 'Evangeline' were inspired by a personal communication made by Gen. Alvord to the poet Longfellow.

"Look at this delicate plant that lifts its head from the meadow,  
See how its leaves are turned north, as true as the magnet;  
This is the Compass Flower, that the finger of God has planted  
Here in the houseless wild, to direct the traveller's journey  
Over the sea-like, pathless, limitless waste of the desert.  
Such in the soul of man is faith."

"I cannot congratulate the poet on the fidelity of the description of the plant as a 'delicate' one.

"Since the leaves tend to assume a position in which the two faces are about equally illuminated by the sun, it might be suspected that their anatomical structure was conformed to this position. This has been confirmed, first by Mr. Edward Burgess, who, when a pupil of mine, observed that stomata were about equally abundant on the two faces of the leaf; and next by Mr. Arthur of Iowa, who has recently published in Prof. Bersey's 'Introduction to Botany,' a figure of a section of a leaf, showing that the arrangement of the 'palisade cells' of the upper and lower strata is nearly the same. The leaves always maintain a vertical position, except when overborne by their weight. As to their orientation, not only is this rather vague in the cultivated plant, but subject to one singular anomaly which may be commended to Mr. Darwin's attention. I have several times met with a leaf abruptly and permanently twisted to a right angle in the middle; so that, while the lobes of the basal half pointed east and west, those of the apical half pointed north and south."

To the above I have little to add. I have not been able to detect any orientation of the leaves in the Kew cultivated specimens, but these, not being planted in a good exposure all round, are out of court as witnesses. On the other hand, when traversing the prairies with Dr. Gray in 1877 I watched the position of the leaves of many hundred plants from the window of the railway car, and, after some time, persuaded myself that the younger more erect leaves, especially, had their faces parallel approximately to the meridian line. I may mention that I, on the same occasion, convinced myself that the flower-heads of various of the great Helianthoid Compositæ, that grew in hosts on the prairie, did follow the sun's motion in the heavens to a very appreciable degree—their morning and evening positions being reversed. This observation did not, however, extend to the Compass Plant, the rigid stout peduncles of whose flower-heads would not be expected to favour such a motion.

Though never before figured in any English work, the Compass Plant has been for many years in cultivation in Kew, where it forms a very striking object, growing 8 feet high, and flowering profusely in August and September in the herbaceous ground. In the United States its range is from Michigan and Wisconsin westward to the Rocky Mountains, and south to Texas and Alabama.

## ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 8TH.

PRIMULAS, Orchids, and Grapes constituted the chief features at this meeting, the first-named occupying a large space, and forming an attractive group. There was a large attendance of the members of the Committees.

FRUIT COMMITTEE.—W. Paul, Esq., in the chair. Mr. J. Wallis, The Gardens, Keele Hall, sent a box of Grapes consisting of Gros Colman in fine condition, and Golden Queen, which was not so good. A cultural commendation was awarded. Mr. G. T. Miles, Wycombe Abbey Gardens, sent samples of new and old Grapes, the former being Black Hamburgh, and the latter Lady Downe's. The Black Hamburghs were very fine. A cultural commendation was awarded. Mr. Hudson, The Gardens, Gunnersbury House, Acton, sent twelve bunches of very handsome Lady Downe's Grape. They had been kept in bottles for five weeks. A cultural commendation was unanimously awarded. Mr. Miles also exhibited three very fine specimens of Lord Carington Pine Apple, for which a cultural commendation was awarded. Messrs. Saltmarsh & Son exhibited a seedling Apple of deep yellow colour with an orange cheek, marked with broken streaks of crimson. It had a tender flesh and an agreeable sub-acid flavour. It was not of sufficient merit to obtain a certificate. Mr. Miles, gardener to Lord Carington, exhibited eight handsome fruits of Petch's Favourite Cucumber, to which a letter of thanks was awarded. Mr. Gilbert, The Gardens, Burghley, sent a pair of Montrose Seedling Cucumber, a cross between Sion House and Kenyon's Freebearer. It is a pretty Cucumber, about a foot long and very symmetrical. Another seedling called Verdant Green was exhibited by Mr. J. McIndoe, The Gardens, Hutton Hall, Guisboro'. Messrs. Backhouse & Son of York again exhibited a seedling Onion which had been sent to a former meeting. The Committee were still of the same opinion as they expressed on a former occasion, that

there is no difference between it and the Red Spanish. Mr. John Clarke, Sycamore Gardens, Rowledge, sent a dish of Tomatoes. Mr. Lyon, gardener to Sir Edward Scott, Sundridge Park, Bromley, sent a very fine dish of Mushrooms, which were much admired, and to which a cultural commendation was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. Messrs. James Veitch & Sons, Chelsea, exhibited a handsome group of Orchids in flower, among which *Odontoglossums* strongly predominated. Some examples of *O. Alexandræ*, *O. cirrhosum*, and *O. Pescatorei* were particularly noticeable. The charming little *O. blandum* was well represented. *O. Roezli* and the variety album, with *O. nevadense*, *O. Andersonianum*, and *O. triumphans*, were also well shown. A central plant of *Ada aurantiaca* had seven fine spikes, and a specimen of *Anthurium Andreanum* was staged with one of its peculiar brightly coloured spathes. A specimen of the *Chimonanthus*-like *Hamamelis virginica* var. *arborea* was shown in flower. A silver Flora medal was awarded for this collection. Mr. W. Bull, King's Road, Chelsea, sent several new plants, including two Palms, one named *Astrocaryum Malybo*, and the other *Kentia Lindenii*, the latter rather elegant. A variety of *Rhipidopteris peltata*, appropriately named *elegans*, was also staged, together with a plant of *Vriesia Falkenbergii* and *Maranta crocata*, described below, for which first-class certificates were awarded.

Mr. B. S. Williams contributed a grand collection of *Primulas*—dwarf, of good habit, and bearing fine trusses of bloom. *P. fimbriata coccinea* and *fimbriata alba* were especially noteworthy, the former for the size of the flowers and deep colour, and the latter for the purity of the white and the large trusses. *P. fimbriata alba* magnifica was in the size and form of the flowers remarkably fine, but the trusses were not sufficiently developed to show the variety to the best advantage. *P. fimbriata Chiswick Red* were very bright, *P. fimbriata rubra* and several others being particularly fine. A group of *Cyclamens* was also contributed, the plants well flowered and of good habit, *C. persicum Brilliant* being remarkable for their intense crimson of the blooms. A silver Banksian medal was awarded for these handsome groups.

Mr. W. Taylor, The Gardens, Longleat, Warminster, was accorded a vote of thanks for cut flowers of *Pelargonium Guillon Mangilli*, which has been referred to so many times in these pages recently. Mr. John Odell, florist, Hillingdon, Middlesex, sent specimens of a large-flowered variety of *Primula sinensis* named *Purity*; but it was not considered sufficiently distinct to merit a certificate. Mr. H. Boller, Kensal New Town, was accorded a vote of thanks for a group of miniature succulent plants. Mr. John Matthews, the Royal Potteries, Weston-super-Mare, sent some ornamental flower vases and small Orchid pans similar to those employed in Messrs. J. Veitch and Sons' nursery at Chelsea. From the Society's garden came attractive groups of double *Primulas*, *Cytisuses*, *Azaleas*, *Ferns*, and *Selaginellas*. Mr. J. Osborn, gardener to H. J. Buchan, Esq., Wilton House, Southampton, sent a plant of *Odontoglossum Wallisi* bearing a spike of yellowish flowers with a pink-tinted lip; and Mr. A. Wright, gardener to J. Brightwen, Esq., The Grove, Great Stanmore, exhibited a plant of *Aerides cylindrica*, closely resembling in stems and habit the peculiar *Vanda teres*, but differing in the flowers, which were of moderate size and white.

First-class certificates were awarded for the following plants:—

*Maranta crocata* (Bull).—A pretty species, with elliptical leaves 3 or 4 inches in length, shining green on the upper surface and purple beneath. It is dwarf and compact in habit, and produces scapes 5 to 6 inches in height, terminating in a small head of orange-coloured imbricated bracts, in the axils of which the flowers are borne; but the beauty of the plants rests in the bracts.

*Vriesia Falkenbergii* (Bull).—One of the plants which Mr. Bull staged in his collection of new plants at the last summer exhibition of the Royal Horticultural Society. It has dark green leaves 1½ inch in breadth, slightly recurving, and purplish beneath. The spike is about 8 inches high, with large closely imbricated crimson bracts, with white apices at the upper portion of the spike.

*Primula Dr. Denny* (Cannell).—A variety of *P. sinensis* with very large flowers 1½ inch in diameter, very rich crimson colour, good form, and distinct yellow eye.

*Lachenalia Nelsoni*.—This was stated to be a seedling cross between *L. luteola* and *L. aurea*, and was exhibited by the Rev. J. G. Nelson, Aldborough Rectory, Norwich. The scape was 8 or 9 inches in height, with pendulous tubular yellow flowers, with a tint of orange in the buds and at the upper portion of the spike. It combined in a marked manner the characters of the two parents, but was superior to both in vigour of habit and size of the flowers.

*Cineraria William Jennings*.—This and the following were exhibited by Mr. James, gardener to Mrs. Watson, Redles, Isleworth, and occasioned some discussion as to the advisability of certifying varieties of *Cineraria*, but the majority were in favour of doing so. The variety named above had handsome symmetrical flowerheads about 1½ inch in diameter, and in colour a remarkably rich purplish crimson self.

*Cineraria Master Colvin* (James).—Also of excellent form and substance; the colour being a warm shade of purple with a narrow clearly defined ring of white near the centre.

*Hamamelis virginica* var. *arborea* (Veitch).—A peculiar *Chimonanthus*-like plant, with dense clusters of small flowers clothing the leafless branches. The flowers are small individually, but collectively



they produced a rather pretty effect owing to each having four long narrow yellow petals, and the same number of short reddish sepals.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair. Dr. Masters read a letter containing resolutions of the Imperial Horticultural Society of Russia on the introduction of the phylloxera into the Crimea—*e.g.*, that the Vine only shall be excluded either as "plants" or "eyes," and without a ball of earth; and if plants be sent from countries where the Vine is cultivated they shall only be admitted with a certificate to prove that the Vine had not been grown

at the same place. Fruits of all kinds (Grapes and raisins excepted) shall be freely admitted. The importation of all kinds of plants from the Crimea shall be provisionally forbidden.

*American Blight.*—In view of the extensive diffusion of this insect the Committee demand the disinfection of the invaded districts, and the prohibition of all importation of Apples. Specimens of Wheat haulm affected with grubs were given to Mr. McLachlan to report upon.

*Cordyceps sp. Attacking Larvæ.*—Mr. McLachlan exhibited the larvæ

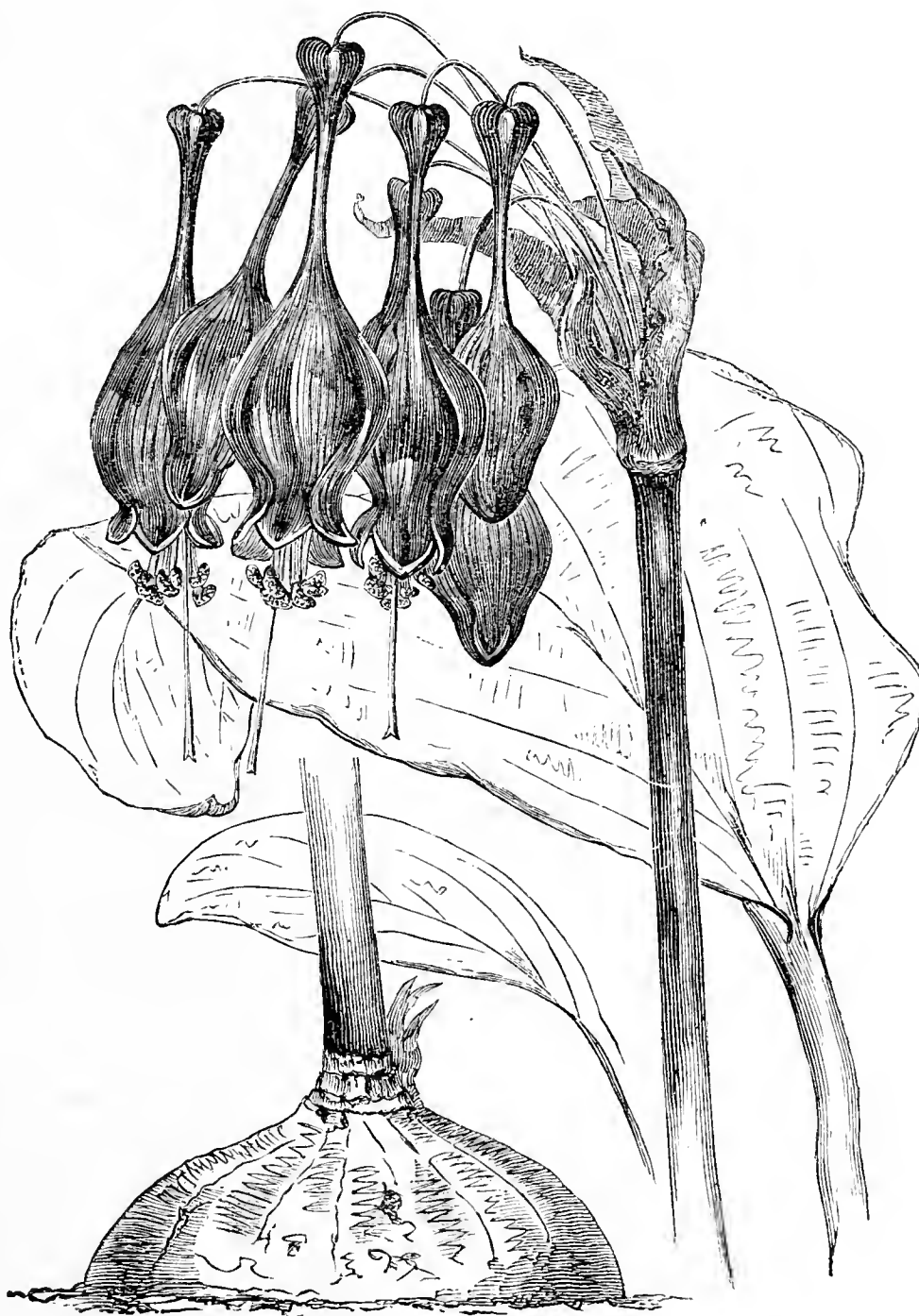


Fig. 25.—URCEOLINA PENDULA. (See next page).

of some wood-boring beetle attacked by a Cordyceps, growing, as is the case with other species of Cordyceps, from the neck of the caterpillar. A question arose as to whether the spores were taken in with the food or by the larva burrowing and so getting them inserted into the folds of the neck, as the President suggested.

*Moth Attacked by an Isaria (?)*.—He also exhibited a small white moth with a branching fungus proceeding from the thorax, apparently an Isaria. It was referred to Dr. M. C. Cooke to report upon.

*Hybrids Between Frogs and Toads.*—Mr. Boulger asked if the account in the "Rev. Belg. Hort." on the existence of the above was a fact. The President believed that it had not been confirmed. Rev. H. Crewe said from his observations such an occurrence might possibly be true.

*Camellia Leaves Attacked by a Fungus.*—Some leaves were forwarded by Mr. Duffield of Winchmore Hill, and were referred to Mr. W. G. Smith to report upon.

The Rev. G. Henslow (Secretary) exhibited some Bamboos, showing in one case horizontal nodes, in another oblique, the popular idea being that the latter were grown on hillsides, and such growth strengthened the stem. The President negatived this view, and said it was a specific characteristic only.

*Wood Attacked by a Fungus.*—He also exhibited a piece of wood, which appeared to have been partially sawed through and the surface rendered irregular by the attack of some fungus.

*Parmelia parietaria.*—He also showed a specimen on a rock from Cheddar, exhibiting curious zones of lichen.

*Pottery Stained by Tobacco Juice.*—He also exhibited pieces of chinaware, ornamented by placing a drop of tobacco juice on the unbaked clay. This penetrates by capillary attraction, and forms a dendritic arrangement, which is fixed by sizing and baking.

### URCEOLINA PENDULA.

THIS beautiful Amaryllidaceous plant was discovered by Mr. Pearce in Peru, and sent out in 1866 by Messrs. Veitch, Chelsea. It was figured in the "Botanical Magazine" for September, 1864, and received a first-class certificate from the Royal Horticultural Society.

The leaves are broadly ovate, not unlike *Eucharis amazonica*, but considerably modified in size and texture, and are deciduous, though in young non-flowering plants the foliage is frequently retained over the resting period. The flowers are produced in an umbel of gracefully drooping bell-shaped flowers, bright yellow tipped with green, and supported by a scape 9 to 15 inches in height according to the vigour of the bulbs. It is a singularly graceful and peculiarly pleasing and showy plant, and of a colour uncommon in stove bulbs. It flowers freely, usually in autumn. I have had plants flower in September and as late as January.

It is of easy culture and does not require much room. The majority of our plants are in 5-inch pots, and 6 and 7-inch pots are quite large enough for the largest bulbs, or three to five may be grown in the latter size of pot; but there is no advantage in this, for it is seldom that all the bulbs flower simultaneously. Potting is best done in February or early March, taking care not to injure the roots. Turfy loam with a little leaf soil and a dash of sand grows it perfectly. Water is required freely when in growth, yet it must be applied judiciously, as an excess will cause the roots to perish. It requires to be grown near to the glass, and succeeds admirably in a cool stove temperature. The bulbs in potting should be covered level with the neck. When the leaves show indications of maturing lessen the supply of water, and after going to rest keep the soil moist. It is increased by offsets.—G. ABBEY.



### HARDY FRUIT GARDEN.

COMPLETE the pruning of Apricots, cutting back any attenuated spurs, and thinning out those that are crowded, and also cut out some of the long growths. Lay in young wood where space permits, but avoid overcrowding; if you desire to obtain fine fruit it is essential that the wood be freely exposed to light and air. If the trees are not unnailed or untied the ligatures should be carefully examined, and if any growths are too tightly secured the ties must be loosened, as inattention to this matter induces the production of gum and causes other injuries.

The pruning of Peaches and Nectarines should be proceeded with, thinning out crowded long bare branches, and so disposing those retained as to equalise the growth as far as practicable. Trees that are loosened from the walls should be dressed with some approved insecticide, whilst those not loosened should be well syringed with the same, also attending to previous remarks concerning the ligature. The branches of a Peach or Nectarine should be 12 to 15 inches distance apart, and the bearing wood a similar distance asunder along them, and starting from the upper side. The bearing wood—i.e., shoots of last year, if not more than a foot in length need not be shortened, especially if, as often occurs at the lower part of the tree,

the buds are mostly bloom buds, and at the upper part wood buds only; but stronger and more elongated growths may be cut back to about 10 inches from the base or to a well-situated wood bud. Extensions need only be shortened as necessary to originate growths where required for covering the space regularly, this applying more especially to the centre or upright part of the trees; the side extensions need only be cut back so as to remove immature wood.

### FLOWER GARDEN.

Borders containing herbaceous plants, bulbs, &c., should be neatly forked over, taking advantage whilst working among them to reduce plants that have become too large, or to divide and increase the choice or desirable. Lilliums may now be planted, being very effective in borders backed by evergreens, or among Rhododendrons in the peat and open spaces of which they revel. The bulbs should be planted about 6 inches deep, and be covered and surrounded with sand. Gladioli for early flowering should now be planted, especially of the ramosus section, treating similarly to the Lilliums. Plant Anemones and Ranunculuses in deep rich soil with a pinch of sand around them, sowing seed of Anemone for autumn flowering. Make a sowing of Sweet Peas and Mignonette in a warm situation for early flowering. Roses and other climbers on walls and trellises should now be pruned, regulated, and tied in. Any standard or dwarf Hybrid Perpetual Roses required to bloom early should be pruned at once, deferring the main pruning until later.

Forward the propagation of all bedding plants from stock plants as cuttings are available. Tricolor and other choice Pelargoniums should have a little heat, so that cuttings may be obtained, which may be partly severed and left on the plants a week or ten days to callus, afterwards detaching and potting them in small pots placed on shelves near the glass. Roots of any choice Dahlias may be plunged in a bed of cocoa-nut fibre refuse, in which the young shoots root freely, they can then be taken off and potted. No time should be lost in sowing seed of subtropical and other bedding plants, such as *Acacia lophantha*, *Centaurea*, *Cineraria*, *Ferdinandias*, *Melanthus*, *Solanums*, *Wigandias*, &c.; but those of quick growth, such as *Amaranthuses*, *Ricinus*, *Zeas*, &c., should not be sown until early April. Divide and place in heat Cannas and similar plants, starting all stock plants required for propagating. Herbaceous Lobelias may now be divided and started in gentle heat. Calceolarias wintered in store pots or boxes should now be planted out in cold pits or frames. Pansies and Violas struck in autumn may now be planted out permanently: they like rich moderately stiff loam, or, failing this, dress the beds with decayed manure. Pot off autumn-struck cuttings of *Ageratums*, *Abutilons*, *Heliotropes*, *Pelargoniums*—indeed all plants likely to suffer by remaining in store pots. Whenever cuttings are to be had of *Alternantheras*, *Coleuses*, *Iresines*, &c., insert them without delay.

### PLANT HOUSES.

*Greenhouse.*—Pelargoniums as they fill their pots with roots will require more water or the leaves will suffer. Treat the Fancy varieties with care in this respect, as they cannot bear so much moisture at the roots as the large varieties. Keep the plants near the glass, and well tied out. Promptly fumigate upon the appearance of aphides. Calceolarias should be potted as they require it; small-sized plants in 6 or 7-inch pots are most suitable for general decoration, but where desired they may be grown larger by shifting them into 8 or 10-inch pots. Assist growing plants with liquid manure. Lilliums will be pushing, and should be placed in a good light position so as to induce a sturdy growth. A pinch of *Cineraria* seed sown now will produce plants that will flower early next winter, and be useful, especially the self-coloured blue and shades of crimson and purple.

*Daphne indica* is much appreciated for its fragrance, but is seldom seen in good condition, chiefly because it is frequently overpotted and overwatered. Plants that were brought early into flower should be encouraged to grow by placing them in a night temperature of 50°, with a rise of 5° to 10° by day, syringing lightly overhead. Examine the roots, and if they fill the pots transfer to others a couple of inches larger, employing either turfy loam or fibrous peat, with a free admixture of sand.

## THE BEE-KEEPER.

### CONGRESS OF GERMAN AND AUSTRIAN BEE-KEEPERS.

(Continued from page 34.)

DR. POLLMAN read a paper on "The Way to Cure a Colony which Breeds Drones Only." The statements of this highly educated bee-master gave rise to a rather excited discussion. Clausmeyer proposed to remove the entire colony, and to put another queen with a few brood combs into the hive, allowing the drone-breeding colony to enter that part of the hive intended for the storage of honey. The honey-gathering bees of the latter colony in that case would join the new queen, while the drone-breeding queen would be stung to death. But Mr. Clausmeyer would very rarely attempt to cure a drone-breeding colony except in spring. In the autumn he would destroy such a stock without the least hesitation.

Count Pfeil introduced the question, "How may the queen be prevented in the most simple and inexpensive manner from having access to that division in 'Stander' and 'Lager' hives intended for the storage of honey." The speaker objected to the queen-excluder, and recommended Vogel's canal, which, by-the-by, Mr. Vogel, the distinguished author, is too modest to call his own invention. Mr. Gübler replied that he was in favour of the use of perforated zinc, the introduction of which would change the entire system of bee-keeping on scientific principles. Breeding would in future take place in the division for the honey, and honey would be stored in the division for the brood. Colonies of bees need no longer be separated, only the queens must be excluded at the proper time. Knobel of New-wied mentioned some of the drawbacks of Vogel's canal, his principal objection to it being that it is an obstacle in cases when hives are to be removed to another place.

#### FOUL BROOD.

Mr. Frey of Nuremberg favoured the meeting with a most instructive speech on foul brood, the most dreaded of all diseases of bees. Starting with a few general remarks as to the origin of low organisms the speaker proceeded as follows:—The fungus of putrefying matter consists of exceedingly small thread-like or oval cells, which increase very rapidly by continuous division. Bacteria, which are the cause of foul brood in bees, belong to the same class of fungi. Time will not allow me to enter fully into a description of the putrefaction of the brood. I can merely state in a few words the conditions which favour the spread of this destructive disease, and the means the bee-keeper should adopt to combat it successfully. Foul brood is of two kinds—1st, Non-contagious; 2nd, Contagious. The former may be caused by rainy or cold weather chilling of the bees, and especially the brood; uncleanliness while stimulative food is administered; feeding with honey or pollen in a state of fermentation; too high a temperature in the hive, and in consequence copious condensation of aqueous vapour. The latter may be caused through healthy bees robbing colonies infected with foul brood, uniting healthy and diseased colonies while they are breeding, and through placing a colony into a hive which has been inhabited by bees suffering from foul brood. In an apiary where bees infected with foul brood have stood there is always danger of the disease breaking out again, even after the lapse of several years. Infection is also possible through aphides, honey which contains an enormous number of fungus spores, flowers on which diseased bees have been may become the vehicle of foul brood; and lastly may be mentioned feeding with honey taken from stocks actually infected with foul brood, and want of caution on the part of the bee-keeper. And what can the bee-keeper do to combat this dreadful disease? 1st, He should take the proper means to prevent its appearance by arresting the conditions favourable to the development of the disease, or should try to lessen their injurious effect. 2nd, The bee-keeper should employ the proper means to stifle the disease should it have made its appearance. Upon the destruction of the vitality of the fungus which causes the disease depends the cure of the colony. The various substances which will destroy the fungi of fermentation are called antiseptics, and a great many of them are known in chemistry, such as sulphur, chloroform, salicylic acid, spirits of wine, &c.; but only a few of these can be employed for our purpose. Carbolic acid has been used to cure foul brood, and is recommended. I need not therefore refer to it, but I may mention salicylic acid, a substance closely related to carbolic acid, and composed of exactly the same elements. Its effect is about one-third of that of carbolic acid, and Nature herself offers it to our bees in the flowers of the Meadow Sweet (*Spiraea Ulmaria*). This plant grows in Germany and England in damp meadows, &c. By encouraging the cultivation of this plant bee-keepers would provide a natural preventive against foul brood. Bees are fond of visiting the flowers of this plant, but if the plant were dried and then rubbed to powder and mixed with the food in spring it would probably also be of considerable benefit to bees. The speaker further mentioned boracic acid and a few other chemicals which have antiseptic properties.

Pastor Rabbow stated that there had been cases of foul brood in his district which, however, had disappeared without any measures

having been taken to cure it. He was inclined to think that the bees themselves had effected the cure through visiting the *Spiraea Ulmaria*, which plant is frequently met with in that part of the country.

After the close of the discussion it was decided unanimously that the next meeting should be held at Erfurt in 1881; Mr. Breslau, the Burgomaster of Erfurt, and Mr. Frankenhäuser of Gispersleben being elected President and Vice-President respectively by a large majority. The cities of Buda Pesth and Frankfort-on-the-Maine were proposed for 1882. A banquet was then held, and the next day the prizes were distributed by the Burgomaster, when I had the pleasure of receiving at his hands a silver medal for a collection of articles used in bee-keeping. As the publication of the awards made to our accomplished foreign friends would not be of general interest to British readers I will next describe a visit to a German apiary.—ALFRED NEIGHBOUR.

#### REVIEW.

*Handy Book of Bees.* By A. PETTIGREW. Fourth Edition, Revised and Enlarged, 1881. W. Blackwood & Sons.

WE congratulate Mr. Pettigrew on the well-merited success of his "Handy Book of Bees." It may well be called the *vade mecum* of profitable bee-keeping for all who look for large honey harvests, while managing their bees as little divergently as possible from the old-fashioned straw skep principle. Honest common sense and a thoroughly practical acquaintance with his subject is manifest in all he says of matters within the range of his experience. He can be thoroughly trusted here, and no one who follows his guidance can go wrong. As he says himself, "the most important chapter in the book" is that wherein he treats of "hives." Everybody knows that he has for several decades been waging war against the ridiculously small hives still too commonly in use throughout England and Wales. Very gradually he has won for himself a hearing, and we believe that no one has been disappointed who has fairly tried his large straw hives in anything like a fairly good country for honey. "The proof of the pudding is in the eating," and where tens of pounds used to be harvested, and that only in exceptionally good seasons, it is not uncommon to find hundredweights of delicious honey garnered in the autumn time—thanks to Mr. Pettigrew's improved hives. Therefore, all bee-keepers whose one object is profit at the least possible cost owe him a large debt of gratitude.

We should like to content ourselves with this favourable notice of the book, which we honestly think one of the best bee books that was ever written; but we should not be impartial in our criticism if we did not express our regret that Mr. Pettigrew does not confine himself to pressing upon public notice the manifest advantages of things within his own experience, but that he allows himself to run tilt in no measured language against the proved successful experiences of others. Hives of wood of every kind, whether bar-framed or otherwise, are unsparingly condemned, and their inventors and manufacturers, as well as those who use them, appear in his eyes to be wanting in sound judgment. "Prejudice," "selfishness," not to say "successful humbuggery"—the latter term borrowed from an American author—is rather strong language to be applied indiscriminately to his brother apiarists who do not exactly see through his glasses. If, therefore, Mr. Pettigrew's book sees a fifth edition, which its intrinsic merits well deserve, we would suggest to him the advisability of rewriting the pages in which he thus vilifies as honest men as himself. The book will then be almost faultless so far as it goes, and will only minister to the profit and pleasure of those who read it.

On one more point, however, we must still question (and it has often herein been questioned), the soundness of Mr. Pettigrew's judgment. We refer to his opinion respecting honey. He tells us that what bees collect in the nectaries of flowers is "not honey proper;" that the "sweet juice" which they bring in from the fields is by them "converted" into honey. "They reswallow it at night, thus making it into real honey." Now, shall we venture to say that this is a "prejudice" in the proper sense of the term? Certainly it is "not proven." This fact might also well be omitted in a future edition; for, to paraphrase Mr. Pettigrew's own words, "the stating of certain opinions will not satisfy an intelligent person unless his mind be fully convinced by the reasonableness of such statements," (p. 35). Such "opinions" will never be admitted as facts till they have been demonstrated to be so by irrefragable evidence.

#### TRADE CATALOGUES RECEIVED.

Henry Hope, 55, Lionel Street, Birmingham.—*Illustrated List of Horticultural Buildings.*  
J. Carter & Co., 237 and 238, High Holborn, London.—*Catalogue of Popular Collections of Vegetable and Flower Seeds.*



Sutton & Sons, Reading.—*List of Disease-resisting Potatoes.*  
Orniston & Renwick, Melrose.—*Catalogue of Flower and Vegetable Seeds.*

Strike and Hawkins, 62, High Street, Stockton-on-Tees.—*Catalogue of Vegetable and Flower Seeds.*

Harrison & Sons, Leicester.—*Price List of Seeds for the Garden and Farm.*

E. G. Henderson & Son, Pine Apple Nursery, Edgware Road.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*

Richard Dean, Ranelagh Road, Ealing, London.—*Catalogues of Seeds, Plants, and Potatoes.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (J. M., Ireland).—If you write to Messrs. George Neighbour and Son, 127, High Holborn, London, you will obtain the information you require.

Tinnea æthiopica (F. S.).—We do not know where you could purchase seed of this plant, but we believe small plants are obtainable from some of the chief metropolitan nurserymen.

Insect on Vinc (W. Martin).—Thanks for information sent. We should be glad to see further specimens, if any should occur in the spring, since it is doubtful whether flies can be reared from those already received. Your precautions were wisely taken; at the same time we rather incline to the opinion that the larvæ which had developed in the pupæ sent had not fed upon the Vine, but that their appearance might be otherwise explained.

The Pine Apple Nursery (Curiosity).—This nursery was established by Mr. Andrew Henderson, who was succeeded by his son of the same name; from him it passed to Mr. John and Mr. Arthur Henderson. In 1871 Mr. John Weeks purchased the business, and sold it in 1876 to the firm of Messrs. E. G. Henderson, of the Wellington Road Nursery; and the present proprietor of the Pine Apple Nursery is Mr. Andrew Henderson.

Magnum Bonum Potatoes (W. G., Elmdale).—The Potatoes you sent confirm what you have said respecting their quality. They were very good. Their cropping and disease-resisting properties are generally admitted, and the variety has given satisfaction to nearly all cultivators who have grown it under favourable conditions. We have tasted several samples, and those grown on moderately fertile land in open fields have usually been of better quality than larger tubers grown in the richer soil of gardens.

Primulas and Cinerarias (Devon).—You appear to have a good strain of Primulas, the colours being varied and some very rich; the flowers are also of good form, but there are better strains in cultivation; for instance, some flowers we recently received from Mr. H. Cannell of Swauley were considerably finer in all respects. The colours of the Cinerarias are good, but the majority of the flowers are very small.

Planting a Ribbon Border (H. Dod).—Four rows will be sufficient, as overcrowding mars the effect of such borders. The mode of arrangement is usually determined by the plants at disposal. We submit three modes of planting, any of which would look well, good plants being employed and the border kept in good condition. The names must be read from the front to the back of the border: 1, Dwarf blue Lobelia, Golden Feather, dwarf Ageratum, and scarlet Pelargonium. 2, Cerastium, Lobelia, silver-variegated Pelargonium, and Perilla, Beet, or some other dark-foliaged plant. 3, Dactylis glomerata, Viola Blue Bell, dwarf scarlet Pelargonium, and tall yellow Calceolaria. The address you require is Messrs. Arnold & Sons, 35 and 36, West Smithfield, London, who will give you the information that we are unable to supply.

Bedding Pelargoniums in Hyde Park (Old Subscriber).—If you refer to page 424, in the issue of November 4th, 1880, you will find a list of the principal varieties that were grown in the above Park and at the Crystal Palace during the past two seasons. If you do not possess this number, it can be had from the publisher in return for 3½d. in postage stamps. We do not know the varieties "Paul Labby" and "Nealey," nor where they can be obtained; perhaps some of our readers can supply the information.

Early Potatoes (J. Cheam).—Myatt's Prolific is one of the most serviceable early varieties in cultivation, being an excellent cropper and the produce of good quality. We have not tested the new Wiltshire Snowflake with it, which is nearly twice the price of Myatt's. You had better try a small quantity of the new variety and ascertain whether it is well adapted for your soil. The address you require is Mr. R. Dean, Ranelagh Road, Ealing, London, W.

Glazing without Putty (J. T. Sinclair).—Copper tacks about an inch long are suitable for squares not exceeding a foot in width. They should taper to the points, and have their heads similar to ordinary "clip" nails, so that the whole length of the nail rests on the glass when driven into the sash above it; if driven in about half an inch or a little more the glass will be perfectly safe. It is important that it be well and carefully embedded in the putty, and a roof is then perfectly watertight. The putty which rises upwards when the glass is pressed firmly down on it must be neatly removed before the sash-

bars (outside) are painted, and a strip of paint should cover the glass as wide as the rebate in which it rests.

Sowing Choice Peas (T. Westlake).—You probably cannot do better in "making the most of" your few choice Peas than to follow the advice of "A KITCHEN GARDENER" on page 29 of the present volume; but instead of sowing the seeds in 3-inch pots, we should prefer sowing half a dozen peas in 4-inch pots, which must be washed clean and be quite dry before the soil is placed in them, otherwise the roots may be injured when turning them out of the pots. Two things are important in this matter—the Peas must not be drawn by remaining too long under glass, nor the pots must not be firmly matted with roots when the plants are transferred to the open ground. As soon as there are sufficient roots to hold the soil together is the time for planting, and the seed should germinate in a cool frame. With good ground and a little fresh light soil placed round the roots at planting you will produce a good if a short row of Peas from the seeds at your disposal. We do not know that the "Earliest of All" Pea is in commerce; if it is Mr. Laxton will probably give information on the subject.

Vines Unsatisfactory (G. F., Devon).—You have not given us sufficient information to enable us to comprehend the condition of your Vines. You do not even state their age nor the character of the wood and foliage that they produce. They may be worn out entirely, or need their roots lifting, but at any rate you cannot err by removing the soil down to the roots, just baring without injuring them, and adding fresh soil. This should consist of fresh turfy loam mixed with a fourth of manure (if the loam is not rich), a bushel of bones to each cartload of soil, and as much burnt refuse and wood ashes as you like. This may be placed on the roots to a depth of 6 inches, and be covered with a layer of rich manure. Copious supplies of liquid manure during the summer would doubtless be very beneficial, and in all probability it would be desirable to train a young cane from each Vine preparatory to removing the old rods. We have seen the finest of Grapes produced by Vines trained as yours are. If you can produce strong growths and good foliage kept clean and not crowded good Grapes will follow.

Early Potatoes (John Elliott).—There are a number of good short-topped early kidney Potatoes such as you require, but the list of early round varieties with short tops is somewhat limited. Several firms catalogue improved forms of Early Ashleaf; and though they may be as good as, it is doubtful if they are superior to Veitch's. This with Mona's Pride, the Early Hammersmith, and Early Bird are all good. To either of the foregoing may be added Rivers' Royal Ashleaf, which is a heavily cropping profitable variety. The haulm of Extra Early Vermont (the best of the Early Rose section) is not so short as the old Ashleaf, but in other respects you would find it excellent. Of round varieties we give the preference to Fox's Seedling and the American variety Alpha. Early Oxford produces less haulm than the latter, and the quality of tubers is good, but it does not crop so heavily. Early Coldstream is worthy of trial. Triumph (American), a red variety, is heavy-cropping and short-topped, and worth a trial to succeed Fox's Seedling. You did not stipulate for exhibition varieties, and the foregoing are recommended for their table qualities; and more than the required number (four) are mentioned simply because all are not advertised, we believe, by any one firm.

Walcheren Cauliflower for Succession (Idem).—It is not generally considered good policy to rely exclusively on one variety for maintaining an unbroken supply of Cauliflowers through the season, but by repeated sowings it is possible to accomplish the feat with the Walcheren. This variety does not succeed satisfactorily on all soils, and the stock cannot always be relied upon. A deep, newly enriched, loamy soil appears to suit it, and indeed Cauliflowers generally. A pinch of seed should have been sown at the end of last August, the plants obtained being pricked out in cold frames and given all the light and air possible during the winter. Towards the end of March or early in April, according to the weather experienced, part of the batch (the strongest plants) to be planted out in a warm sheltered position, and lightly protected from frosts with branches of evergreens or inverted pots. To succeed these the remainder of the autumn-sown plants may, a few days later, be planted in a cooler open spot. A small sowing to be made in gentle heat during February, the plants pricked out in boxes or in a frame, hardened off before becoming drawn, and towards the end of March finally planted out in an open spot. If you have no autumn-sown plants give this batch a warm position. Early in March, April, May, and June small sowings may be made in the open, and if the after treatment be liberal a good supply may be obtained till frost intervenes. During the prevalence of hot dry weather the plants will be much benefited by copious waterings and a mulching of short manure or litter of any kind.

Cucumbers and Melons (Melon).—You may sow the seeds now provided you have no difficulty in maintaining the temperature we advised last week, but if your house is lofty we doubt if you will be able to do that with only "one pipe running the length of the house" for top heat; this, however, you can easily ascertain. We doubt if you can grow a more suitable Cucumber than Telegraph; and good free-growing Melons that usually set their fruit freely are Victory of Bath and Eastnor Castle Green-flesh. As scarlet-fleshed varieties the Blenheim Orange (new) and Reid's Scarlet are good. To make the most of the seed we should place one seed in the centre of a 3-inch pot. The soil should consist of turfy loam and leaf soil, the pots being filled about three parts full, and not pressing the soil firmly. The seeds should not be placed flat in the soil but on their edges, and be just covered. If the soil is in a proper state as to moisture, that is, neither too wet nor too dry, and the pots plunged in the hotbed, no water will probably be required until the seedlings appear. When water is needed it must always be given in a tepid state, or a few degrees warmer than the house. When the roots of the plants appear on the surface of the soil add fresh warmed compost. When the plants are an inch or two high withdraw the pots from the hotbed and place them on it for a few days preparatory to removing them to a shelf near the glass, so that they may grow as sturdy as possible. The temperature of the house should then be 65° at night, 70° by day with fire heat alone, increasing to 85° with sun. Ventilate slightly by the top ventilators when the heat rises above 70°, and close in the afternoon as early as possible, so that the temperature afterwards does not rise above 85°. The greater the heat in the house the greater must be the amount of moisture by damping the paths, wall, &c. If you can raise strong healthy plants you will have surmounted the greatest difficulty, and you may then hope for a "measure of success." Liquid manure will not be required until the plants are bearing heavy crops, and a peck of fowl's dung will make you fifty gallons suitable for the purpose.

Worms in Flower Pots (Col. Simpson).—We know of no plan so safe for getting rid of worms as watering the soil thoroughly with lime water. If you place a lump of fresh lime, say about 2 lbs., in a pail of water and stir well, then let it settle for two or three days, skimming the film off the surface, you will have clear lime water, which, if applied to the soil, will cause the worms to rise to the surface of the pots, when they can be easily picked up and removed from the house. Others, however, will enter the pots from the

leaves in which they are plunged unless means are taken to prevent them doing so. The remedy you propose would not be a safe one. It would be better to mix lime and soot with the leaves, and in addition we should spread a thick layer of it just below where the base of the pots would rest when plunged. When the plants are potted, too, it is a good plan to first cover the drainage with fibry turf from which the soil has been shaken, or tree leaves, and on this drainage-protecting medium spread a thin layer of soot; this will in a great measure prevent the ingress of worms, and will be a suitable fertiliser for nearly all plants.

**Plants for Back Wall of Vinery** (*Idem*).—As you say the house is hip-roofed we presume the plants will receive light from the "hip." In this case, as you require fragrant flowers, we think few will be so satisfactory as such Roses as *Maréchal Niel*, *Belle Lyonnaise*, *Gloire de Dijon*, and *Cheshunt Hybrid*. *Heliotropes* will also be suitable, the old species being as good as any for this purpose. *Rhynchospermum jasmynoides* would succeed in such a position, and afford abundance of its pure white and sweet flowers. We have seen *Cytisus racemosus* cover a wall attractively, and produce its bright yellow honey-scented flowers freely in spring. A plant of the Lemon-scented *Verbeena* (*Aloysia citriodora*) would afford a large supply of highly perfumed sprays for cutting.

**Table Plants** (*J. P., Dublin*).—Suitable plants for growing in your stove for the above purpose are *Dracæna terminalis*, *terminalis alba*, *Cooperi*, *Ernesti*, *Sydneyi*, *jucunda*, and *gracilis*; *Crotons angustifolius*, *Johannis majesticus*, and *Weismanni*; *Aralias elegantissima*, *leptophylla*, and *Veitchii*; *Pandanus Veitchii*, *Cocos Weddelliana*, *Geonoma gracilis*, *Dæmonorops plumosa*, *Ananassa sativa variegata*, and *Reidia glaucescens*. *Adiantum cuneatum*, *scutum*, *assimile*, *gracillimum*, and the new variety *Bausei*, with *Pteris tremula* and *serrulata*, are useful among Ferns, and may be grown in the Cucumber house, as shade is beneficial rather than injurious to them during the summer. *Cyperus alternifolius* and *C. laxus* may be grown in a similar position if needed, and the variegated form is also attractive. The lovely *Caladium argyrites* does not object to shade while it enjoys heat and moisture. *Gloxinias* may be started on the bed in the Cucumber house, and be afterwards grown on shelves in the same structure, one of which can usually be suspended on each side of the path, and level with or above the trellis; such shelves would be of great value for all kinds of stove plants in a small state. Amongst flowering plants suitable for your purpose are *Gloxinias* in variety. *Tydasæ* (for culture and varieties see page 573 of last volume), *Gesneras cinnabarina*, *refulgens*, *zebrina*, and *exoniensis*, small plants of such *Begonias* as *insignis*, *fuchsioides*, and *metallica*, besides some of the tuberous forms, *Ixoras*, *Poinsettias*, *Euphorbia jacquiniæflora*, *Aphelandra aurantiaca* *Roezlii*, *Scutellaria Mocciniana*, *Epiphyllum truncatum*, with *Eucharises*, *Stephanotis*, *Gardenias*, and *Tuberoses* for cutting. The *Begonias* will require the coolest position.

**Spotted Lettuces** (*J. P.*).—The spotted Lettuces are rarely grown in England, and hence seed is not offered by seedsmen in this country. Amongst the varieties mottled with reddish brown that are grown on the continent are the *Spotted Tiger*, *Spotted Trout*, *Coblentz*, *Emperor's Head*, *Perpignan*, and *Sanguinea Panachée*, all of which are sold by E. Benary, Erfurt, Prussia. If you are ordering seeds from an English seedsman he would no doubt obtain you a packet of any one of these varieties; or you might send 1s. 6d. or 2s. to the address given, and ask for a packet of the best variety of the kind you would describe in your letter. The *Stanstead Park*, to be obtained of any seedsman, is usually a little spotted when young, but is not nearly so marked in that respect as the varieties above named. In respect to Lettuces not running to seed quickly, all does not depend upon the variety, as if required to "stand" well they must be well grown. The owners of many small gardens are apt to sow the seed very thickly, neglecting to either thin-out the plants or transplant till they are much drawn, and then perhaps in a position partially shaded by fruit trees, where oftentimes manure and moisture are insufficient. Sow often and thinly, either in rows, where the plants are to remain, thinning out early and freely; or in a bed, and transplant before the seedlings are crowded, selecting good open ground in both instances. Lettuce well repay good culture, and by following the above simple practice a supply may be maintained with either Cabbage or Cos varieties.

**Dressing Seeds with Paraffin** (*H.*).—It does not injure the seeds if they are merely damped with it. We have no doubt it would ward off attacks of mice, but doubt its effect upon birds. Nothing applied to the seed peas will prevent the young growth being eaten by birds, and we should rather syringe them with paraffin, using it at the rate of one wineglass to three gallons of water, keeping it stirred in the watering pot by discharging back each alternate syringe. If this fails wood ashes or soot and lime may be dusted over frequently when the growth is dewy, which may probably have the desired effect. With small seeds again the husks are not generally eaten, the embryo growth being the delicate morsel aimed at, and which is picked out when germination has commenced. A few yards of fish netting properly stretched over the seed beds is after all the most effective, especially in districts where chaffinches and sparrows are very voracious. The latter eat the seed leaves principally, and which are unaffected by any application to the seed, hence the advisability of using netting. If this is unobtainable Pea stakes may be substituted, carefully disposing them over the beds, birds not liking to venture among these.

**Relative Fall of Temperatures In and Outdoors** (*H. Yates*).—The temperature of a vinery being 65° when the thermometer outside was 32°, the temperature of the vinery would fall correspondingly, but not in the same ratio with the outside temperature. The outside temperature, for instance, shall be 32° at dusk; by 9 p.m. it has fallen to 12°, or 20° below freezing; the temperature in the vinery will have fallen about 4° or 5°, and if the external temperature continue at 12° through the night, the temperature of the vinery in the morning will be found between 50° and 55°. For the size of the house, the thickness of the glass, the openness or closeness of the laps, and the wind both in force and direction, will make a difference of about 5°. The reduction in temperature of an artificially heated structure is about half that of the decrease of the external temperature, or with a vinery at 65° with the outdoor 32° it would fall about half of the decrease of the outside temperature of 12° as your minimum, or to 55° in the course of six or nine hours, and remain stationary (presuming the frost to continue at 12°) at 50°. The higher the difference between the internal and external temperature the greater will be the divergence. There is a difference of 33° between 65° and 32°, and the loss will be about half, but with the internal temperature at 50° and outside 32° there is only a difference of 18°; and presuming the temperature outside to fall to 22°, the loss would not be so great, being about 10°. A great deal depends on the wind, the extent of the glass surface, and the continuance of the cold.

**Names of Plants** (*C. F.*).—The spray arrived much crushed and withered; it appears to be *Spiræa Thunbergii*, which you will find illustrated and described on page 131 of our issue of February 14th, 1878. If you have not preserved this

number it can be had from the publisher, price 3½d. This *Spiræa* is very useful for early forcing, and may be easily had in flower in January.

#### COVENT GARDEN MARKET.—FEBRUARY 9.

GOOD well-kept Grapes are now in demand and fetching good prices, otherwise our market remains the same; American Apples arriving in bad condition, sound samples realising better prices.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Oranges .....	100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	1 lb.	0 0 0 0	dessert .....	dozen	2 0 4 0
Cobs.....	1 lb.	2 0 0 0	Pine Apples ....	1 lb.	1 0 2 0
Gooseberries ..	1 sieve	0 0 0 0	Plums .....	1 sieve	0 0 0 0
Grapes .....	1 lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	1 case	12 0 18 0	ditto .....	100	0 0 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	1 sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 0 9	Scorzonera .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	3 0 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	1 lb.	0 3 0 8
Garlic.....	1 lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### WEEDS OF THE FARM, AND HOW TO DESTROY THEM.

(Continued from page 100.)

IN continuation of this subject we will briefly refer to the mode of destroying Docks, this being the last weed spoken of on page 100. We have always employed for the purpose a small pickaxe firmly fixed in a light but strong handle, which has a point at one end and a narrow cutting edge at the other, the former being used instead of the spud, and the latter for loosening the earth round the roots.

The field *Convolvulus*, with a pretty pink flower, is, of all our twining weeds, the most troublesome upon the best Turnip soils; and as these plants are perennial, with roots striking deep into the subsoil, they flourish in extremely dry seasons when the root crops make slow growth, and often cost great labour to remove them, and sometimes they destroy the crop entirely. The usual way to destroy these weeds is to kill the surface runners by hoeing, and to weaken the roots in the subsoil by deep cultivation. It is often called Bindweed, and is found winding its tough and curling stems around the corn stalks, and also taking fast hold of Beans and Peas, to the serious injury of the crops.

The plants called Crowfoots, of which there are many forms, are also known as Buttercups; but the flowers vary in size and shape, although generally of a yellow colour. All Crowfoots contain much acidity, and are disliked by cattle on that account, whether they grow on arable or pasture land, but especially the latter, as dairy cows often yield milk which is injuriously affected by it. These weeds in Grass land have such a strong hold on the subsoil that they cannot be destroyed except by breaking up the soil and cultivating, which we have done in some instances; but upon strong land they are sure to appear again after a few years. Upon arable land, too, they grow strongly, and the only means



of destroying them is by cultivation and hoeing, as the varieties found in cultivated land are nearly all propagated by seed. In pastures or park lands the only way to prevent ill effects whilst feeding by dairy cows is to mow them off when in full flower to stop their seeding.

The common Fleabane is a sure indication of a wet barren soil. It flowers in August, and usually grows about a foot or 15 inches in height, with a bright yellow flower, having a star in the centre. Land bearing this plant may be said to be worthless for pasture or tillage, and should be planted with trees.

The Coltsfoot is usually found upon strong cold clay soils, and often blooms in March before the Violet. The blossom appears long before the large grey leaves of the plant; the seed ripens early, and the balls of feathery seed expand and assume the appearance of a Dandelion puff, the wind carrying the seed far and wide; it is therefore desirable to prevent the seeding, as well as to destroy the gross leaves and stems by cutting with a weed hook, which if left alone will often deteriorate, and sometimes destroy any of our farm crops. To destroy the plants in strong land is nearly impossible, and the roots penetrate so deeply into the subsoil that we can only hope to check them by deeply cultivating the land with the subsoil plough.

Thistles next demand our attention, not only on account of the injury they do, but also in consequence of their great diversity in size and habit of growth. The most difficult which we have to contend with is a perennial one, which, although not of a gross habit, is nevertheless very troublesome, because it roots so deeply. On some of our very best loamy soils Thistles are very difficult to contend with, and it has been said that their presence indicates good land; but this is only partly true, for they are found in nearly all soils. To destroy them entirely is out of the question, although they may be weakened by hand-pulling in the autumn and by subsoiling during the latter part of the summer. Under any circumstances they must be cut up with the weed hook, because they hardly ever come forward enough to have their flowerheads pulled off in the same way as Charlock is treated by the weed-eradicating machine. The varieties of Thistles which are propagated only by seed are rather numerous. The Musk Thistle is of the largest size both in height, leaf, and stem, often reaching a height of 6 or 7 feet. Then we have a very dwarf Thistle, about 2 or 3 inches high, found mostly on the chalk downs or thin pastures on the limestone soils. There are others, all of which are derived from seed; and the home farmer will do well to keep his fences trimmed and the Thistles cut whilst in bloom, both in woods and on the roadsides. All the annual varieties yield to the weed hook, which is practically the only means of keeping them down and preventing their seeding. The latter unfortunately is often a hopeless case, because so many of our neighbours do not take the trouble and incur the expense of destroying them.

Our next remarks apply to weeds found on most strong clay soils, which are infested with two kinds of weeds especially—viz., the Black Bent Grass and the annual commonly called Yellow Cress, bearing a yellow flower. In order to destroy these two weeds, which are so injurious to Wheat crops on heavy land, it is necessary to drill the Wheat at 12 inch intervals, so that the horse and hand hoe can both be employed with effect; otherwise in some seasons—especially after a mild winter, when the Wheat comes on early, but on receiving a check it loses colour—these weeds would seriously injure the crop unless it is horse-hoed and hand-hoed. These weeds are indigenous to the soils named, and can only be destroyed when they appear in the way we have indicated.

Upon some of the best heavy loams we find a kind of hedge Grass, for it often originates in the fences, and by neglect takes root in the cultivated land. It is commonly called Onion Grass, because it multiplies and increases underground with numberless bulbous roots; the stems also grow to a great height in the crops. It should never be allowed to seed, but the roots should be forked out of any crop by hand labour whenever it makes its appearance, because if only one bulb or root is left it will greatly increase.

The light lands and hill farms—whether of chalk, sand, or gravel soils—are subject to various weeds, which it will be necessary to name; for besides Charlock, to which we have previously referred, we have the blue-blossomed Bugle, the Poppy or Redweed, the wild Vetch, the Cockle, the wild Parsnip, and the Knapweed upon the chalk and stone soils. All these are annuals arising from seed, but they can only in part be destroyed by the weed-eradicating machine, the remainder by the weed hook. On the sand and gravel soils we have the Corn Marigold, the Henbane Nightshade, the white-blossomed Morgan, and the red-flowered Sorrel. These all indicate that the land is deficient in chalk or lime; it is therefore evident that we may spend much labour in destroy-

ing them every year but in vain, for the only way to prevent a succession of such weeds is to chalk the land and neutralise its acidity. Upon almost every soil we have a number of Grasses and weeds too numerous to mention growing in the hedges, and such weeds as the Hogweed and the Burdock are often found on the tillage land, also wild Mint and Nettles; all these should be treated like the Dock—rooted out and removed. Much of the weeding now required upon farms in general arises from carelessness and neglect of the farmer or his neighbours. Hedges and borders may with advantage be cut and trimmed twice a year—in May and July; and the proceeds, except White Thorns, given to cattle and pigs, answering the double purpose of keeping down weeds and affording food for animals on the farm.

We must here allude to parasitic weeds, such as Dodder, called the Trefoil or Clover Dodder. This is a parasitic plant, the seed of which vegetates in the soil, but produces spiral shoots, which soon wind round neighbouring plants, and then becoming disconnected from the earth derives its sustenance from the juices of the living plants of Clover. In some countries the farmer is actually debarred from cultivating certain plants, as the Dodder will often form a dense network over a whole field, and completely destroy the crops. The only way to avoid the Dodder, it being usually found in foreign seed, is to grow on the home farm all the seed of Clover required, or purchase good home-grown seed, which is generally free from the seeds of this weed.

We must in conclusion, although we have probably omitted noticing in this paper some injurious weeds, refer to such as we find impeding the growth of Grass in the pastures or park lands especially. These may be stated chiefly to consist of Rushes and Hassock Grass. The principal Rushes are the large coarse bunch Rush and the small Rusb. The roots of the latter run underground like those of Couch; the former grows in strong bunched, and will live after the land has been drained, and should therefore be cut up with the turf knife and burnt. The small-running Rush will yield to draining and the application of earth and manure composts. The Hassock Grass is often found on some of the best bullock pastures, but should be cut up and burnt, as they often occupy valuable space upon good pastures.

#### WORK ON THE HOME FARM.

*Horse Labour.*—This will be resumed on the driest soils, such as the chalk hills, the stone brash, sands, and gravels, some time before the strong or flat-lying loams will bear the tread of the horses. Some of the first work which can be done will be ploughing and pressing the two-or-three-year-old grass and Saintfoin leas which are intended for sowing with Oats or drege. On the chalk soils where water grass which runs only on the surface prevails, if ploughing with the skim coulter is carefully done and the turf tucked under the furrow, this grass will decay during the growth of the Oat crop. It is not so upon the sands and gravels containing the white-rooted couch, where the ploughing and pressing cannot be done with advantage except that weed be absent, when the land can be prepared for Peas and other pulse crops. In all these instances the home farmer will notice the benefit which must accrue from the use of the new patent press drill to which we have lately called attention in our notice of agricultural implements and machinery. We desire also to remind farmers of the advantage of mixing Beans with late Peas or winter Vetches for spring seeding, as a crop of one of them may be obtained in the event of attacks of the black or green aphides, as these seldom appear in the same season. The black come in a dry season with east winds, the green usually appear when the west or north west winds prevail. Now is the time to provide seed Potatoes of the early varieties, because they require to be laid out upon floors, so that at planting time they may be taken to the field and set without breaking off the buds, and upon the sand or gravel soils they may be planted at once if the weather continues open and moderately dry. We think these early varieties may be planted upon land in which the dung has been buried under the stetch, and if carefully dibbled in with the setting stick the early sprouted stems are more likely to be preserved than by planting in the furrow before the plough. At the time for early Potato planting the best and newest early sorts which are offered should be taken in small quantities every year, as they are too expensive for planting extensively in the field, unless raised by experimental plots to provide tubers for future use if they prove valuable for the purpose.

*Hand Labour.*—The women may now commence stone-picking on the dry soils upon the young Clovers, Saintfoins, &c., or it may be deferred until the rolling is done, because on the chalk soils we often have to deal with large ragged flints, which the roller does not press into the surface out of the reach of the mowing machine or scythe. In this case we recommend the home farmer to have a good-sized box attached to the frame of the roller, with one or two men or lads to follow picking up these flints and placing them in the box as the roller proceeds in its work, to be emptied when turning at the headland or outside the field.

Shepherds are now fully employed, as the Hampshire down lambs fall daily. Some of the earliest are now forward enough to follow the ewes on to the old leas, where they may have Turnips or Swedes



drawn and strewed over the land for the ewes. As soon as the lambs will eat they should, together with ewes, go into the root land and be allowed to run in advance of the ewes, receiving the best of food; as stock lambs they may have the range of the field, eating off the Swede greens, with good hay in their racks. As soon as they will eat cake it may be advisable for them to have a little in their troughs, especially the wether lambs intended for sale. The dry sheep may now be pushed forward with a full allowance of cake meal mixed with the cut roots in troughs, whether of Turnips, Swedes, or Mangolds. These sheep or, in fact, ewes and lambs, when they are accustomed to be fed in troughs should never be removed on account of wet weather. In case of removal to pasture or old lea ground the sheep become unsettled, and do not thrive so well as when regularly fed in their troughs, removing them on to fresh ground daily. Ewes with lambs should not be removed, for although they may have plenty of food they lose their regular habit of feeding, and probably before they get settled down the weather may become fine and dry.

Feeding live stock with malt should now be well considered by the home farmer, because there is usually a portion of the Barley crop which is thin and not fit for malting purposes as required by the brewers. It may, however, be made into malt for consumption by cattle instead of being sold at a low price in the market. The advantages of this practice are as yet not well defined. We therefore advise farmers who have the opportunity to make it a matter of experiment. When a heavy duty was levied on malt experiments were made, some of which were adverse to it, partially caused by the duty upon the article. We remember when malt and Carrots were used for feeding colts and young horses, particularly in Suffolk, and it was generally admitted that nothing would bring horses for sale into better condition. There is no doubt but that malt may be advantageously used as a flavouring material in admixture with injured hay and straw. It may also be mixed with the food of calves and young lambs as an inducement to them to eat their trough food at the earliest period. In a suckling dairy in which calves are fattened for sale as real malt will prove about the best food that could be given, and also for dairy cows to increase the milk.

#### VARIETIES.

**SALE OF PIGEONS.**—We understand that Mr. John Waters of Belfast has recently sold his entire collection of Jacobins, and has purchased Mr. Salter's stud of Fantails, numbering seventy bird (Whites, Blacks, Blues, and Laced). Mr. Waters thus buys back the greater portion of his own birds sold by him to Mr. Salter a year ago. In the collection are two of the best Black hens known. We wish Mr. Waters success.

— **OCCUPATION FOR WOMEN.**—Madame Lina (from Geneva) of 399, Edgware Road, London, requests us to notice her efforts to make watchmaking a woman's occupation. Our correspondent writes:—"The odds are greatly against me; and although I have succumbed to trade opposition and lost heavily, I am, nevertheless, determined to succeed in my undertaking to make watchmaking a woman's occupation, or perish in the attempt." A woman so earnest in benefiting her class deserves encouragement and success.

— **DEATH OF A WELL-KNOWN BRAHMA HEN.**—We regret to hear that Mr. Norris has recently lost his beautifully pencilled Dark Brahma hen. This bird, which was bred by Mr. Garner and was for some time in the yards of Miss E. Shuter, was a model in colour and pencilling. It failed a little in shape and foot feather, but even so it was a very strong bird in the pen.

— **AMERICAN FOOD PRODUCTS.**—The exports of beef from America in 1880 have been computed by the "American Cultivator" at 20,500,000 lbs., mostly going to England. A feature of the trade in cattle has been the large increase in the production in Montana, where the business of cattle-raising is being developed more rapidly than in any other part of the United States. But the largest and most notable increase has been in breadstuffs. The shipments of corn and Wheat aggregate fully 15,000,000 bushels, against 12,000,000 bushels in 1879; and the shipments of flour aggregate 1,100,000 barrels, against 250,000 barrels in the previous year.

— **AMERICAN BUTTER, CHEESE, AND EGGS.**—Of butter some 146,000 packages have been exported, and of cheese 169,000 packages have been sent across the water. These figures show a large increase both in receipts and exports compared with 1879. It is the universal testimony of dealers that the finest grades of butter have met with quick sales all through the year, but poor grades have had a hard time of it in fulfilling their mission, whatever that might be. Com-

pared with previous years the receipts of first-class butter have been in larger proportion, thus showing that butter makers are more fully appreciating the imperative importance of sending only a really good article to market for family use. The increased production of oleomargarine may have had some influence upon the butter market in regulating its demand or volume consumed; but we are assured that such is the increased opposition to the "stuff," that now nobody who has any respect for their taste or stomach will use oleomargarine if they know it. The receipts of eggs have also shown a material increase over the previous year, the return being for 1880 177,000 cases, 22,000 barrels, and 29,000 boxes, against 135,000 cases, 16,000 barrels, and 25,000 boxes in 1879. Prices of eggs have declined of late on account of increased receipts.

— "FLOODS: THEIR CAUSES, MITIGATION, AND CURE," is the title of a pamphlet received, by "AQUARIUS," and published by Fletcher & Son, Norwich. Referring to the greater prevalence of floods now than in earlier periods, the author observes with some force that "When the surface of the country was covered with primæval forest, the bulk of that part of water produced by rainfall which reached the streams reached them by very much slower processes than it does now. First, the foliage and branches of tall trees had to be wetted, then the lower-growing vegetation underneath, both of which would hold a large amount of water in suspension; next, a considerable thickness of decayed and decaying vegetable matter, holding water like a sponge, and parting with it very slowly to the brooks and rivers. But when trees were cut down and forests cleared, and when so many thousands of acres of land in the watersheds of our rivers are covered by the roofs of rain-proof buildings, by paved footways, streets, and roads, and when wet lands are carefully and thoroughly drained, the water has no sooner fallen than it is hurried on to the brooks and rivers as quickly as troughs, pipes, gutters, sewers, and drains can carry it; thus causing an overflow, frequently with very disastrous results."

### POULTRY AND PIGEONS

#### EGGS IN WINTER.

SEVERAL correspondents have written to us asking for some additional information to supplement that contained in "FANNY FIELD'S" letter which we published a fortnight since. It is rather late in the season to say much upon the subject now, but a few plain directions may even yet be of use, and we trust our readers will bear our hints in mind and be prepared in good time for next winter.

In the first place a comfortable house, warm without being overheated, well ventilated without being draughty, and thoroughly dry under foot, is indispensable. To secure the necessary warmth a southern aspect may be chosen, or the house may be built against the chimney or flue of a greenhouse or stable, or some simple heating apparatus may be used in very cold weather. Care must be taken, however, that the house is not overheated. Nothing is more fatal to birds than a sudden transition from great heat to cold. We lost a valuable bird a short time since from a chill which he caught on removal on a frosty day from an exhibition pen in the kitchen to his run. The heating power should therefore only be sufficient to exclude frost in severe weather, and the heat should not be raised over 60° at any time.

Ventilation presents no great difficulty. The birds should have a house of sufficient size to allow them about 10 cubic feet of air space each. Three sides of the house should be perfectly airtight; on the fourth side there should be an opening near the bottom to admit fresh air. The open space at the foot of the door, or the small door for the ingress and egress of the birds, is generally sufficient for this purpose. Then near the roof there should be another opening to allow the foul air to escape. It is as well to make this so that it can be kept partly closed in severe weather and very open in summer. A good glazed window on the south side of the house is an important point, as the birds will not resort to their house in the daytime unless it be well lighted. Sheds are all very well in summer, but in winter a well-ventilated house is a more comfortable place than an open shed.

Dryness of the floor of the house can only be secured by having

the roof perfectly watertight, having the floor raised some inches above the outside ground level, and paying great attention to cleanliness. Earth or ashes make the best floor; and if it be not convenient to have the droppings removed every day, the ground under the roost may, with advantage, be strewn with the ashes from the house every morning. But a thorough cleansing of the house at least once a week is indispensable. Insect pests must be kept in check by the free use of paraffin, lime, &c.

So much for the houses, next as to the stock. For laying purposes no bird over two and a half years old should be kept, and a fair proportion, say one-half, of the stock should be March or April-hatched pullets of the year. For winter laying, hatching so early as January or February is, we find, a mistake, as the pullets commence to lay in September and then moult with the old hens. March or April-hatched pullets, if well fed and of a good laying sort, should commence to lay in October or November at latest, and lay off and on through the winter. The expression "good laying sort," brings us to the question, What breed of fowl it is best to keep. As to this, each person must judge for him or herself which breed is most suitable for their situation and circumstances. As regards laying, the main point to be attended to is that the birds are selected simply for their laying qualities without regard to fancy points. Procure the best laying strain that can be had to start with, and then set only from the best layers mated with cocks of a good laying strain. Slight in-breeding will do no harm, but anything like close in-breeding must be avoided. Crosses between good laying strains of different breeds often produce wonderful layers. We shall be glad to hear from our readers the results of their experience in this respect. We have found the following crosses very advantageous. (1), A Dorking cock mated with Brahma hens; (2), a Spanish or Minorca or Leghorn cock mated with Brahma hens; (3), a Brahma cock mated with Houdan hens; (4), a Game cock mated with Brahma hens. Even if the laying properties of a strain have been lost by breeding for exhibition, a cross will often bring them out as strongly as ever again.

The last point to which we desire to draw attention is feeding. In winter the birds should have their first meal of soft food given warm, not hot. Any good meal or pollard (otherwise middlings) mixed with boiling water is best. If Indian meal is used it requires cooking for a short time. As a rule we do not recommend the use of Indian meal for Asiatics, as being too fattening, but in severe weather it may be used with advantage on account of its great heat-giving properties. In the middle of the day a small feed consisting of scraps from the house and a little meat of some sort may be given. A feed of sound good grain at night completes the list. The meal should be mixed well, so as to be of a dry consistency, not soft or sloppy. We have named no particular meal or grain, as all should be given in turn. Birds, like human beings, are the better of a change of food. The mixtures of different grain sold by corn-dealers should be carefully avoided, as by giving all sorts at once a change is rendered impracticable. An abundance of green food is necessary. A plentiful supply of pure water is of as much importance as good feeding, and should by no means be neglected.

One final word as to the quantity of food to be given. The appetites of birds vary so much that no rule can be laid down as to this. The only safe method is to take care that no food is ever left lying about uneaten, and to handle the birds occasionally to see that they are in moderately good condition—neither very fat nor very thin. We have now done our best to inform our readers as to the means of having eggs in winter, and can only add that "FANNY FIELD'S" hints as to personal attention must not be neglected. Fowls, like anything else, will not pay if neglected. If properly cared for they will generally yield a fair return.

#### POULTRY EXPERIENCES.

I ONCE again send you an account of my poultry experiences, which, I think, tend to prove that Dark Brahmas are by no means profitable as far as the production of eggs is concerned; they are great eaters, are constantly becoming broody, laying from eighteen to twenty eggs and then want to sit, and are certainly, as far as my experience goes, not the breed to keep where eggs are wanted. I shall be very pleased if any of your many readers can from their own experience satisfactorily prove the contrary; for my part, after keeping them for three years, I gave them up. I have invested in a Houdan cockerel, and I intend to breed a cross between him and the Dark Brahma hens. I shall, I think, obtain a fowl with less tendency to sit, and therefore more disposed to lay, and, I believe, of better quality for table.

I have not been so much troubled with feather-eating this past year. Whenever I have observed any disposition that way amongst

the fowls I have mixed flowers of sulphur with the soft food, from two to three tablespoonfuls, and I have certainly found that an efficient remedy, and I would advise anyone who is troubled with the feather-eating disease in their yards to try the sulphur remedy.

My only mishap was the loss of one hen, and as I thought the circumstances under which she died rather peculiar I will narrate them. This hen had been sitting on a dozen eggs for nearly her full time of three weeks, but after the first ten days she refused food; on the twentieth day I found she had scarcely any heat in her body, the eggs were also chilled. I put the eggs in a bucket of hot water, and then placed them under another hen that I happened to have broody at the time; the next day I had five chicks hatched. The hen died a few days afterwards, and a post-mortem examination revealed a broken egg inside her, which of course had been the cause of death.

#### RESULTS.

	Eggs.	Hens.	Eggs set.	Chickens hatched.	Chickens reared.	Pullets.	Remarks.
January .....	114	16					2 Dark Brahma cocks.
February .....	85	16					
March .....	284	15	48				1 hen died
April .....	146	14	11	34	34		1 hen sold
May .....	179	14		11	10		44 chickens reared to maturity, of which 20 were pullets and 24 cockerels.
June .....	157	14					
July .....	136	14					
August .....	133	14					
September .....	71	14					8 hens sold.
October .....	10	6				20	
November .....	35	6				20	1 pullet sold.
December .....	50	6				19	
Total .....	1430						

RECEIPTS.	£	s.	d.	EXPENDITURE.	£	s.	d.
348 eggs sold .....	2	1	10	Value of 19 birds in stock } on 1st January, 1880 .. }	3	16	0
1082 eggs used .....	4	10	0	Paid for food .....	10	19	6½
22 birds killed .....	4	8	0	Houdan cock purchased .....	0	10	6
14 birds sold .....	2	16	0	Interest on cost of houses ..	1	0	0
Value of manure .....	1	0	0	Profit .....	3	13	9½
Value of 26 birds in stock ..	5	4	0				
Total .....	£19	19	10	Total .....	£19	19	10

—F. C. TAYLOR.

#### WOLVERHAMPTON SHOW.

THIS event, which closes the show season with considerable éclat, and is, perhaps, one of the most important of the year, came off on Friday, Saturday, and Monday last. The entries were numerous even for Wolverhampton: poultry exclusive of selling classes numbered nearly 600, while Pigeons were 370 strong. The quality in both cases was quite up to former years. The arrangements were on the whole very good. Mr. Lane judged the Game and Game Bantams; Mr. Cresswell the Brahmas, Cochins, and Dorkings; while Mr. Dixon took the rest of the poultry. Mr. Hutton judged the Pigeons.

There was considerable alarm felt for a short time on the evening before the Show owing to some of the empty baskets becoming ignited through contact with a gas jet. Fortunately the mischief was discovered in time, and by the presence of mind and prompt exertions of some of the officials the flames were extinguished before they had gained much strength. One or two baskets were entirely consumed and many damaged, but the building and birds did not suffer at all.

GAME.—Any Variety Cocks (ten) were an exceptionally good class. First and cup for the Game classes went to Mr. Jenkins's champion Brown Red, extra bright in colour, good in head and eye, very fine in tail, said by Mr. Lane to be the best Brown Red he has seen for years. Second (Matthew) a Black Red, extra good in colour, very good in head, eye rather full in hackle, with a well-carried tail. Third (Brierley) a very good Brown Red with a very fine head, and good colour. Fourth (Martin) a Brown Red again, dark in colour, well laced on breast, good in style; rightly placed after the winner here. How he came to be placed above him at Liverpool we cannot understand; h.c. (Beck) a very good Black Red. Black Red Cockerels (twenty-five) were a good class. First (Matthew) very good in style, hard and close in feather, but shot on wing bars; we should have placed him behind second and third. Second (Walters) a very stylish chicken, good in head, a shade dark in colour, a trifle heavy in tail. Third (Jenkins) a very stylish reachy chicken, grand in colour and exceptionally short in feather. Fourth (Staveley) a very stylish chicken, dark in colour; h.c., Forsyth, Capon, Gibbs, Carless, Doyle; c., Jeffries, Mynors, Fletcher, Forsyth. Brown Red Cockerels (fourteen).—A very good class. First (Mather) extra good in colour and stylish, with a good head and eye. Second (Wilson) very well laced on breast, but much too heavy in feather. Third (Dance) a very reachy stylish chicken, extra well laced on breast, rather short in head, and a shade full in feather. Fourth (Bond) very stylish, a shade dark in colour, fine in tail and head, well placed; h.c. (Matthew), the best shade of lemon in the class; h.c., Warner, Fludger, Parker, Matthew. Any Other Variety Cockerels (ten).—A very good class. First (Staveley) a Duckwing, very good in colour and style, rather short in head, and full enough in tail. Second (Phillips) a Duckwing, better in style, head, and tail, but deficient in colour. Third (Mather) a coarse yellow-legged Pile, very much splashed on breast. Fourth (Jenkins) a Duckwing, perfection in colour, style, and head, but too heavy in feather; c., Phillips, Brown Red Hens, any age (fifteen).—The best class we have seen this year. First (Fludger) an almost perfect hen. Second (Matthew), the second Birmingham hen. Third (Brierley) a hen again, the best in class for colour, hackle and tail; only wants size to be first-class. Fourth (Dance) we thought an error, being much inferior to v.h.c. 70 (Matthew) a first-rate hen with a slightly twisted hackle as her only fault; h.c., F. Ward (2), Martin. Any Other Variety Hens,



any age (sixteen).—A very fair class. First (Matthew) a Black Red pullet, extra good in head, very rich in colour, and will make a fine hen. Second (Brierley) a Black Red pullet, better in shape and style, but a shade rusty on wings and slightly defective in head. Third (Horton) a rather coarse Black Red pullet, very full behind and pencilled on wing. Fourth (Staveley) another Black Red pullet, a shade dark in colour, good carriage, with a good head, but too dark in eye, and with a reachy neck; h.c., Capon, Lewis; c., Weeks.

BRAHMAS.—*Dark Cocks* (fifteen) were a very good class. First-and-cup (R. Mitchell) the Hull winner, greatly improved since then; he is now a grand bird, very neat in head, shapely, and of fine size. His faults are hocks, a malformation of beak, and a slightly grizzled hackle. Second (Miss Cotes) good size and shape, with a small but very ugly peaked comb and a little white in sickles, looking quite out of sorts. Third (Comyns) the Cambridge cup cockerel of last year; very shapely, but heavy in comb and hocked. Fourth (Lingwood) a large bird of good colour, ticked on breast and too long in back; v.h.c. (Thomas) a good bird in all other points but deficient in saddle; v.h.c. (Ansdell) white in tail and slightly ticked on sides of breast, otherwise a good bird; h.c., Norris. *Hens* (sixteen) contained most of the noted birds of the year. First, Miss Cotes completed her list of victories with the Palace cup hen. Second (Lingwood) a very large hen, only moderately pencilled on any part, and very mixed in shade on back, heavily hocked. Third (Newnham & Manby) very good in colour but hardly distinct enough in marking; the third Dairy Show pullet of last season we think. Fourth (Comyns) a good-sized hen of the dark type, fairly marked, v.h.c., Percival (the Birmingham winner); h.c., R. Mitchell (the Hull winner); h.c., Comyns, very well marked and clean in colour, but coarse in comb; v.h.c., Kendrick; h.c., Pritchard. *Cockerels* (twenty-four) were for their numbers only moderate in quality. First (Lingwood) one of the Palace team, the fourth we think. Second (F. Bennett) a good-sized bird, wanting in shape, too straight in back and rather coarse in comb, with grizzled hackles. Third (J. Taylor) a neat head, mottled breast, rather wanting in saddle, and heavily hocked. Fourth (F. Bennett) we preferred to second and third; though too straight in back he was very neat in head and had a good black breast; v.h.c. (Comyns, 2) the second and third Cambridge birds, the best in colour and head in the class, but losing through want of size; v.h.c., Birchley; b.c., Norris, Buckston, T. S. Clark, W. Matthews, Turner, Breeze. *Pullets* (twenty-seven) were a very good class. First (Percival) a very clearly pencilled pullet of the light type, with a rather bad comb. Second (Lingwood) more shapely than the winner and shorter in leg, but not so clearly pencilled on breast, a well-feathered bird. Third (Lingwood) of the darker and more heavily marked type, the best Brahma of the three, but a bit mossy on cushion, and that of a Cochins type. Fourth (Mrs. Ward) a rather small well-marked grey pullet; v.h.c. (Comyns), the third Hull pullet; v.h.c., Kendrick; h.c., Comyns, Mrs. Ward, Pritchard; 143 (Norris), the third Canterbury pullet. *Light Cocks* (fourteen) in point of quality a good class. First (Ansdell) the Liverpool winner, again rightly placed first. He is grand in size, shape, and colour, with nice hocks and a fairly good comb. Second (G. H. Wood) good size but narrow, too yellow on saddle, and white in tail. Third (R. Mitchell) the Birmingham winner, here fairly behind first, but might well have stood above second. Fourth, Mr. Percival's well-known winner; b.c., Birch, G. H. Wood, Bigg. *Hens* (thirteen) were, as we have too often seen this season, very bad in colour. First (Horsfall) a good-sized shapely hen, well feathered without hock, but with far too much buff showing through her shoulders. Second (Bloodworth) another shapely one, but showing buff all over. Third (Birch) good in size and shape but defective in colour again, the best of the three in this point. Fourth (Simons) the purest colour in the class, and might well have stood higher; v.h.c., G. H. Wood (2); h.c., Butler, Breeze, Williams; 185 (Mitchell) unnoticed, a well-known winner, now quite overdone, and properly left out. *Cockerels* (nine) were a good class, but rather defective in colour. First (G. H. Wood) good in shape and neat in head, with pure body colour, but too warm in hackle and hocked, the Canterbury winner we think. Second (T. S. Clarke) a moderate bird in most points, with a shocking comb, which should, we think, have displaced him. Third (Howe) very shapely with a neat head and good colour, but a little white in tail; might, we think, have headed the list, but for a buff shade on wing, and as he was should have been second. Fourth (Birch) a rather leggy cockerel of good style with a badly shaped comb but good clear colour; h.c., Tedd, Mrs. Holmes; 199 (Norris) unnoticed, the neatest head in the class and very pure in colour, but rather wanting in depth of breast and foot feather. *Pullets* (eleven) produced some extremely good birds. First-and-cup (T. S. Clarke) a very squarely made shapely pullet of pure colour and fine foot feather, with moderate hocks, perhaps a trifle short in tail. Second (Norris) we thought a mistake, as although of good size and fine shape she was deficient in foot feather. Third (Norris) the Birmingham cup pullet easily second, and pressing closely on first. Fourth (G. H. Wood) another very good well-known pullet; h.c., Tedd, Breeze, Birch, Mrs. Holmes.

COCHIN CHINAS.—*Cinnamon and Buff*.—*Cocks* (eighteen) were a very fine class. First (R. Mitchell) a good-sized shapely Buff cock of medium shade and even colour; hocked. Second (Morris) a very rich Cinnamon cockerel, squarely built, with good feather. Third (Darby) a self-coloured Buff cockerel of medium shade, with heavy feather and hocks. Fourth (C. Brown) a Buff cock of medium shade, with dark shoulders and wings rather in disorder, too straight in back; b.c., Allsopp, Swindell, Nicholls, Tomlinson, Bloodworth, Clatworthy, Hine. *Hens* (sixteen) were another fine class. First (Swindell), the second Birmingham pullet, looking as beautiful as ever. Second (Procter) a beautiful even lemon-coloured hen, as round as a ball. Third (Bloodworth) a hen of perfect Cochins shape and fine feather, but a trifle uneven in colour. Fourth (Tomlinson) a shapely hocked hen, only moderate in colour; v.b.c., Percival (a large, shapely, well-feathered hen, mossy in colour), Mitchell; h.c., Swindell. *Brown and Partridge Cocks* (thirteen) were a very good class. First (R. J. Wood), the sixty guinea cockerel of 1879 looking overdone, and with a little white in tail. Second (Percival) a squarely made bird with grand gloss, not so large as the winner. Third (Tomlinson), another bird of similar stamp, but brown on fluff. Fourth (Clatworthy) a moderate-sized cockerel, nicely feathered, without hock, very neat in head; v.h.c. (Dorrington), good size and colour, but rather straight in back; h.c., Tudman, R. B. Wood. *Hens* (thirteen) were a very good class. The Judge divided the prizes between the two shades of colour. First (C. Brown) a large grouse-coloured bird of good shape and with fine feather, well marked on breast, rather deficient in body marking. Second (Mrs. F. Grant) a grouse colour again, good in size and shape but wanting in marking. Third (R. J. Wood) very well marked indeed, and of great size, but rather wanting in shape. Fourth (R. J. Wood) of medium colour, with moderate markings, good size, and fine leg feather; v.h.c., Percival. *Black Cocks* (fifteen), as also the hens, were in such a bad light that judging or criticism was almost out of the question. First (Toomer) a shapely hocked bird, with fine gloss and neat head. Second (Horsfall) not so neat in head and short of feather. Third (Badger) large but not very shapely. Fourth (Darby) rather small, and wanting in foot feather; v.h.c., Newnham & Smith, Ansdell; h.c., Procter, Turner, Williamson. *Hens* (seventeen) were, as far as we could see, a fine class, failing chiefly in comb. First (Procter) a large shapely hen uneven in comb. Second (Southwell) a shapely hen with good gloss, rather coarse in head. Third (Toomer), the first-

prize Birmingham pullet, in fine condition but comb gone wrong. Fourth (Turner) a nice pullet; v.h.c., Ansdell (perhaps the best in the class, very large, and neat in head); h.c., Cook, Pritchard, Fortey, Mr. Sirgen. *White Cocks* (ten) were a very good class indeed, and we thought it the best we have seen this season. First-and-cup (Chase) a very pure White of grand size, heavy feathered, but hocked, broad in cushion, and with a splendid tail. Second (Darby) another large and extremely good bird. Third (Chase) a good-sized shapely hocked bird. Fourth (Darby) a short-legged squarely made hocked cock; h.c., Mrs. Stevens, Rawnsley. *Hens* (twelve) were also a good class. First (Percival) a neat-headed White pullet of good shape, well fluffed out. Second (Darby) a fine old hen, rather out of sorts. Third (Chase) a very shapely pullet, short of middle toe-feather. Fourth (Darby) an old hen with the same fault; v.h.c., Mrs. Steven; h.c., Ward, Rawnsley.

DORKINGS.—*Coloured, except Silver-Grey*.—*Cocks and Hens* (eleven) were not a remarkable class. First (B. Smith) a good-sized pair; the cock a trifle long in leg, the hen very square and shapely. Second (Peacock) a moderate pair, the cock of the old light shade and too heavy in comb. Third (Pickering) only moderate, the cock with a drooping comb again. Fourth (Countess of Dartmouth) Rosecombs, both coarse in head, and the hen with sooty feet; h.c., Countess of Dartmouth. *Silver-Grey*.—*Cocks and Hens* (seven).—Except the winners, which were a well-known pair, not a remarkable class. First-and-cup (B. Smith) a very good pair of pure silvery colour, the cock slightly splashed on breast. Second (Roe) another clear-coloured pair, the hen wanting in size. Third (Miss Pasley) pure colour again, but rather long in leg and deficient in breast. Fourth (Cheeseman) a moderate pair. *Any Other Variety*.—*Cocks and Hens* (nine) were not at all a strong class. First (Pilgrim) Whites, only moderate in colour, of fair size; the cock rather squirrel-tailed. Second (Countess of Dartmouth) shapely rose-combed Cuckoos. Third (Mrs. Logan) moderate Whites. Fourth (Countess of Dartmouth) Whites, only moderate, the cock being coarse in comb and squirrel-tailed; h.c., Mrs. Walker, Mrs. Logan (Whites).

HOUDANS (nine) were a good class. First (W. Nicholls) of fair size and medium colour, with good crests and muffling. Second (Wingfield-Stratford) larger than first, but hardly so good in points. Third (Mrs. Pattinson) moderate only, the cock squirrel-tailed. Fourth (Thomas) the cock very dark in colour and rough in comb, the hen small but good in quality; h.c., Copplestone, Turner.

GREY-CEURS (six).—Only a moderate class. First (A. Ward) a short-legged pair of fair size, the cock rather heavy in comb, the pullet very good indeed in style. Second (A. E. Ward) a good pair of old birds. Third (Pettie) of medium size, the hen good in crest and muffling. Fourth (Fowler) fair chickens in brilliant condition.

SPANISH.—*Cocks* (thirteen) were by far the best class we have seen this year. First-and-cup (Boulton), face and lobe pure white and nicely spread out, but rather rough and folded. Second (Rawnsley) a long lobe but folded. Third (Boulton) rather a small bird with a nice face and a well-spread-out lobe. Fourth (Bull) a folded lobe again; v.h.c., 378 (Walker) a grand lobed one but squirrel-tailed; 380 (Walker) another fine face but not in order; h.c., Lady Allsopp, Dixon, B. Smith, Walker. *Hens* (twelve) were a very fine class. First (Sillitoe) a pullet with a beautifully smooth long lobe. Second (Street) also had a very good face and lobe. Third (Rawnsley) not so large in lobe, but face of fine quality. Fourth (Street) a large face and lobe but not so smooth; v.h.c., B. Smith, Walker (2); h.c., Lady Allsopp, Street, Andrews.

POLANDS (eleven) were a fine class. First (Rawnsley) Golden, good in size but not in colour of crest. Second (Partington) very fine White-crests. Third (Partington) Golden, the cock with a very large crest. Fourth (Huish) good Silvers; h.c., Mrs. Ricketts (Golden), Rawnsley, and Beldon (Silvers).

LEGHORNS (ten) were a good class; all the prizes went to Browns. First (Gibbs) of good colour, only moderate in lobe, and with rather heavy combs. Second (Bradbury) smart chickens with neat lobes. Third (Hurst) of rich colour and with very good lobes, but the cock with a shocking comb. Fourth (Bradbury) a fine pair; v.h.c., Adams, Sleigh (Brown), Fowler (Cuckoo).

ANDALUSIANS (eight) were not a remarkable lot. First (Simon) neat heads and fair lobes, but colour not very clear. Second (Simon) better in marking but not so clear in lobe. Third (Marchant), and fourth (Stevens) moderate pairs; h.c., Stevens.

MALAYS (eight) were a good class. First (Brooke) dark in colour and of good shape and carriage. Second (Bishop) another good pair of medium colour. Third (Brooke), the cock rather deficient in carriage. Fourth (Draper) a hard-feathered pair of great reach; h.c., Mrs. Bishop, G. Burnell.

HAMBURGS.—*Gold-spangled* (seventeen) were indeed a wonderful class. The Judge said he could have well awarded eight or ten prizes. First-and-cup (Bracewell) a finely-marked pair with good lobes and combs, and in fine condition. Second (Rawnsley) fine colour, very neat lobes, and brilliant condition. Third (May) good in colour and marking, but the cock rather heavy in comb and lobe. Fourth (May) another very smart pair, good in all points; v.h.c., Fielding, Bracewell (2), May, Coultbald, Parsons, Harris, Blakeman; h.c., May, Beldon, were all good pairs, and have nearly all made their mark elsewhere. *Gold-pencilled* (eleven) were not up to the Spangled, but still a good class. First (Fielding) a very smart pair of birds, good in all points. Second (Rawnsley) the cock very clear in lobe and rich in colour, the hen falling a trifle on breast. Third (Beldon) nice lobes and colour, but rather heavy combs. Fourth (Snell) a very good all-round pair; h.c., Rawnsley. *Silver-spangled* (six) were for their numbers wonderfully good, every pen being noticed. First (Rawnsley) a very evenly marked pair, but the cock not quite clear in lobe, and both rather heavy in comb. Second (Fielding) not so good in marking, but better in head properties. Third (Beldon) failed only in lobe. Fourth (Rawnsley) had rather heavy combs; v.h.c., Harris, Ashwell. *Silver-pencilled* (five) were a good class. First (Rawnsley) a very neat evenly marked pair. Second (Beldon), third (Fielding), fourth (Rawnsley) were all good pairs of even quality. *Black* (thirteen) came next to the Golden-spangles in point of quality. First (Rawnsley) good combs and lobes, and in great bloom. Second (Pettie) good in points but out of condition. Third (Copeman) in good bloom, and very neat in head and lobe. Fourth (Pettie) very stylish and fine in lustre; v.h.c., Mayers, Whitehouse; h.c., Fielding, Kilvert (3), Sergeantson.

BANTAMS.—*Game* (sixteen) were an exceptionally good lot. First-and-cup for Bantams (Fletcher) very stylish Black Reds; the cock extra will set up on legs, a shade dark in colour and thick in head, the hen very perfect in colour. Second (Filkin) yellow-legged Piles, the cock perfect in style and tail, colour good but a shade defective in wing ends; the hen a trifle large but very stylish. This pen must have pressed the winner hard. Third (C. D. Jones) Duckwings of fair merit only, and might well have made way for fourth (Fielding), a very good pen of Black Reds; v.h.c., Boddington (Pile); h.c., Mayo and Adams (Black Reds).

SEBRIGHTS (sixteen) were a remarkably good class. First (Lloyd) Silvers, very even in marking except on the cock's tail. Second (Sergeantson) Golden, good in colour and marking. Third (Ansdell) Golden, of very beautiful lacing, but the cock not ben-tailed enough. Fourth (Leno) Silvers, good in marking and tail properties, but the cock uneven in comb; h.c., Bracewell, Leno, Fielding,



Serjeantson, Mrs. Ricketts and Mrs. Evans (all Silvers). *Any Other Variety of Bantam* (fifteen) were a nice collection. First (Phelps) one of the best marked pairs of Cuckoo Bantams we have ever seen. Second (Rawnsley) a very smart pair of Black Rosecombs. Third (Ashley) White Rosecombs, very clear in lobe for the colour. Fourth (Countess of Dartmouth) very neat Japanese; v.h.c., A. A. Clarke (Cuckoo), Osceola; h.c., Phelps, Ludlow, and Pearson (Black Rosecombs); h.c., Cook (Black-booted).

**SILKIES** (eleven) were a fairly good class, not equal to that at Yeovil last week. First (Mrs. Holmes) a very neat pair of Whites, very clear in colour and blue in lobe. Second (Darby) Whites again of fine quality. Third (Darby) Brown Silkies. Fourth (Toomer) White again; h.c., Mrs. Ricketts (White), Darby (Brown).

**ANY VARIETY NOT INCLUDED IN ANY OTHER CLASS** (sixteen) were a fine collection. First (Beldon) a good pair of Sultans. Second (R. B. Wood) a large fine pair of Plymouth Rocks. Third (Miss Mortimer) good Aseels. Fourth (Rawnsley) moderate Sultans; v.h.c., Kilby (Plymouth Rocks), Mrs. Ricketts (Sultans), Bradbury & Adams (Plymouth Rocks), Mrs. Bennett (very fine Langshans).

**DUCKS.**—*Aylesbury or Rouen* (eleven) were a fairly good class. First (Birch) fine Rouens. Second (Harris) good Aylesbury. Third (Partington) Rouens. Fourth (Snell) Aylesbury; h.c., Crofts (Aylesbury), Snell, Bragg, Crofts (Rouen). *Any Other Variety* (fifteen) contained many pens of Pekins, which might well have a separate class. First (Gibbins) Paradise. Second (Serjeantson) Spotted Bills. Third (Nicholls) fine Pekin drakes. Fourth (Yardley) Ruddy Sheldrakes; v.h.c., Nicholls, Birch and Wade (Pekins); h.c., Snell and Simon (Pekins), Leno (Mandarin), Simon (Cayuga), Oakley (West Indian).

#### PIGEONS.

**DRAGOONS** were wonderfully good classes, the competition being very keen. *Blue or Silver Cocks* numbered twenty. First (Close) a Blue. Second (W. Smith) a Silver. Third (Morpus), and fourth (W. Smith), both Blues; v.h.c., Grant and Close (Blues), Morpus (Silver); h.c., Crofts, Carn (2), and Shewell (Blues). *Any Other Colour Cocks* (eighteen).—First-and-cup (Morpus), a fine Yellow. Second (Morpus) a Blue Chequer. Third (Shewell) a Grizzle. Fourth (Elkington) a Red; v.h.c., Hemingsley (2, Blue Chequers), Close (Red), Elkington (Yellow); h.c., W. Smith & Shewell (Blue Chequers), Sparrow (Yellow), Booth and Smith (Grizzles), C. Lomax (Yellow). *Hens, any colour* (thirteen).—First (Booth) a Yellow. Second (Close) a Blue. Third (Elkington) a Blue Chequer. Fourth (W. Smith) a Grizzle; v.h.c., Smith (Blue); h.c., Carn (Blue), Close (Silver). *Cocks bred in 1880* (nineteen).—First (Morpus) a Blue Chequer. Second (same) a Blue. Third (same) a Yellow. Fourth (Grant) a Blue Chequer; v.h.c., Southall and h.c., Smith (both Blues). *Hens bred in 1880* (thirteen).—First (Grant), and second (Elkington) Blues. Third (W. Smith), a Silver. Fourth (Carn) a Blue Chequer; h.c., Smith, Owen, and Morpus (Blues); c., W. H. Peake (a Blue Chequer).

**ANTWERPS** were all remarkably fine classes. *Short-faced Blue, or Blue Chequered Cocks* (eight).—First and second (Hubbard) Blues. Third (Yardley) a Blue Chequer. Fourth (Edwards) a Blue; v.h.c., Blanton (Blue). *Any Other Colour Cocks* (twenty-five).—First and fourth (Saller) Silver Duns. Second and third (Hopwood) a Silver Strawberry and a Silver Dun; v.h.c., Wade (2, Silver Duns); h.c., Moxley, Yardley, Gough, and Blakemore (Silver Duns), Moseley, Plumley, Gough (Strawberries), Buckland, Garfield, Sadler, Edwards, Clulee (Red Chequers), Gardener (2, a Red Chequer and a Silver Dun). *Hens, any colour* (twenty-two).—First-and-cup (Hopwood), second (Wade), third (Sadler), and fourth (Clulee) were all Silver Duns; v.h.c., Smart & Sadler (Silver Duns), Gough (Strawberry), Hopwood (Red Chequer); h.c., Buckland (2), and Gough (Red Chequers), Butler & Lister (Strawberries), Clulee (Silver Dun). *Any Colour Cocks bred in 1880* (twenty-nine) were an extraordinary class. First (Moseley) a Strawberry, second (Chavasse) (2, Gordin), and fourth (Kendrick) were all Silver Duns; v.h.c., Chavasse (2), Gardener & Hopwood (Silver Duns), Yardley, Southall, and Rawnsley (Red Chequers), Sadler (Blue Chequer), Butler (Blue); h.c., Dowler (Blue), Blower & Gough (2, Red Chequers), Sadler, Jerome, Chavasse, Moseley, Green, and Gordin (Silver Dun). *Any Colour Hens bred in 1880* (seventeen).—First (Hopwood), second (Sadler), Silver Duns; third (Hopwood), a Red Chequer; fourth (Chavasse), a Silver Dun; v.h.c., Gough (Blue), Chavasse (Silver Dun); h.c., Dowler (Blue), Oldham, Chavasse, Gordin, and Jerome (Silver Duns), Gough (Red Chequer), Gardener (Blue Chequer); c., Wade & Mrs. Bishop (Red Chequers), Dowler (Blue).

**HOMERS** (twenty-two).—First (Booth), second (Turner), third (Currie), and fourth (Hadley) were all Blue Chequers; v.h.c., Hadley; as also h.c., Leake (2), Currie, Hadley, Margetts, Jenkinson, and c., Leake, were again all Blue Chequers.

**OWLS, ENGLISH.**—*Cocks* (twenty-three), as also the other Owl classes, were of good average quality. First-and-cup (Lister), and second (Weston) were Blues. Third (Weston) a Silver. Fourth (Leake) a Blue; v.h.c., Ingram & Duthie (Blues); h.c., Weston (2), Wardle, Booth (Blues), Branton and Edwards (Silvers). *Hens* (seventeen).—First (Lister) a Silver. Second (Weston), third (Duthie), and fourth (Walker) all Blues; v.h.c. and h.c., Weston (Blues); h.c., Weston and Hammond (Silvers); c., Wardle (Silver).

**TURBITS** (ten) beyond the winner were only an average class. First (Stephenson) a Blue. Second (Yardley) a Silver. Third (Wardle) a Silver. Fourth (Bulley) a Yellow; h.c., Branton (Red), Wareham (Yellow).

**TUMBLERS.**—*Balds or Beards* (eleven) were a wonderful class. All the prizes went to Short-faced, but the Long-faced might have won in their own classes elsewhere. First (Silvester) a Blue Bald with a head as good as that of an Almond. Second (Martin) a Silver Bald. Third (Martin) a Blue Bald. Fourth (Weston) a Blue Beard; v.h.c., Weston (2, both Long-faced, a Red and a Blue Beard), Crofts (a Long-faced Black Bald), Cartwright (2, a Silver and a Blue Bald); h.c., Southall (Blue Beard). *Any Other Variety except Almonds* (seventeen) were an extra good class. First (Yardley) a Long-faced Black Mottle. Second (Crofts) the champion Red Agate, passed over on account of being dirty. Third (Weston) a Red Kite. Fourth (Weston) a Yellow Mottle; v.h.c., Weston (Black Kite), Yardley (Yellow Agate), Goodburn (a Red Kite); h.c., Weston and Mays (Red Rosewings), Langridge (Red Kite), Southall (Muffed Black Mottle), Yardley (Red Mottle), Bocking (Black Mottle), Southall (Muffed Red-breast).

**MAGPIES AND SWALLOWS** (twenty-five) were a fine class; indeed nearly every bird was a well-known winner. First (Tedd) a Black Swallow. Second (Bocking) a Black Magpie. Third (Tedd) a Black Magpie. Equal fourths (Mudie and Bulley) both Red Magpies; v.h.c., Crofts (Red Swallow); h.c., Stevens & Lewis (Black Magpies), Tedd, Branton (Red Magpies), Tedd, Bulley (Yellow Magpies), Bulley; c., Wardle (Black Swallow), Wardle (2, Red Swallows), Mays (Yellow Swallow).

**FANTAILS** (seventeen) were a very good class, but we thought the Judge went rather too much for the English type. All the noticed birds were Whites except the fourth which was a Blue. First, Beldon; second, Warhurst; third, Loversidge; fourth, Yardley; v.h.c., Pecl, Loversidge; h.c., Crofts, Laidlow.

**JACOBS AND NUNS** (seventeen) were nothing wonderful as regards the first-

named variety, but the Nuns were good. First (Bocking) a Yellow Jacobin. Second (Bocking) a Red Jacobin. Third (Crofts) a Black Jacobin. Fourth (Beldon) a Red Jacobin; v.h.c., Weyman & Buchanan (Yellow Jacobins); h.c., Crofts (Red Jacobin), Tatham (Black Jacobin); c., Tatham (Yellow Jacobin), Wardle (Black Nun), Yardley (Red Nun), Beldon, Gould (Red Jacobins).

**ANY OTHER VARIETY** (twenty-six) were a grand collection, the prizes had all to go to the standard varieties, for which there were no separate classes. First-and-cup (Crofts) a Black Pied Pointer. Second (Crofts) a Blue Pied Pointer. Third (Weston) an Almond Tumbler hen. Fourth (Yardley) a Dun Carrier; v.h.c., Chase, Lomax, and Whitehouse (Black Carriers), Yardley; h.c., Weston (2), and Goodburn (Almond Tumblers), Silvester (Satinette), Yardley (Black Mottled Trumpeter), Wilson and Yardley (White Pointers, Martin (Almond Tumbler), Clulee (Black Trumpeters), Lomax (Starling), Keay (Black Barb).

#### OFFICERS OF THE POULTRY CLUB.

PERMIT me to announce through your columns that the election to the vacant offices in the Poultry Club has concluded as follows:—*President*, Hon. and Rev. F. G. Dutton. *Treasurer*, H. R. Dugmore. *Hon. Secretary*, A. Comyns. *Committee*, T. W. Anns, O. E. Cresswell, Rev. H. C. Fellowes, J. C. Fraser, R. E. Horsfall, T. P. Lyon, L. C. C. R. Norris, Rev. J. D. Peake, E. Pritchard, Rev. W. Serjeantson, Butler Smith. Mr. Butler Smith does not wish to serve, and therefore a place on the Committee is vacant, to which the Rev. E. H. Morgan has been nominated. Any other nominations and all the business of the Club should henceforth be addressed to the new Secretary, A. Comyns, Esq., 47, Chancery Lane, London, W.C., and not to myself.—O. ERNEST CRESSWELL.

#### ASEELS AT CAMBRIDGE.

THESE classes, which were specially good, were, in consequence of a mistake on the part of the Show authorities, not judged by Captain Astley on the first day of the Show. We were, therefore, only able to give the awards (which reached us by wire) last week. Colonel Montessoro kindly consented to withdraw his entries—which were among the best—and to judge the birds on the second day of the Show. The following are our notes on these classes:—

*Cocks Any Age* (eighteen).—First (Fellowes) a Mottle bird, looked like last year's winner, a trifle tall, but in good form and having the characteristics of an Aseel; fine skin and face, and good legs and tail; handles well and clear crow. Second (Bryan) a Grey cockerel, a good chicken all over and very hard in hand; will never look better, and may possibly become coarse; the best shaped bird in the class. Third (Dutton) a Red Mottle cockerel, famous back and limbs and well shown. Fourth (Carvill) a White cockerel, clear in feather and face; preferable to the first-prize bird of same colour at Birmingham, being more compact and showing more quality; v.h.c., Bryan (Red Mottle), Gatty (Spangle cock); h.c., Carvill, Mann and Porter; c., Bunnett; 14 (Montessoro) a strongly made Black Mottle of very fine carriage; we thought one of the best in the class. *Hens Any Age* (twenty-one).—The Blacks in this class were decidedly the most attractive. First (Peake) a Black hen, good all round, proper size and style. Second (Dutton) a Black pullet, very beautiful in shape and plumage, somewhat wanting in limb. Third (Dutton) a Brown pullet, very neat and handles well, but wanting in style. Fourth (Bunnett) a Speckled pullet, rather ragged and out of condition, but very promising; v.h.c., Dutton (2, Black), Sugden (Black and White-spangle), Peake (Pheasant); h.c., Mann and Porter, Miles; c., Sugden. Pens 28 and 29 (Col. Montessoro's birds) were both specially good, the first containing a very fine imported Black hen, and the latter another Black, which was perhaps best in the class.

#### OUR LETTER BOX.

**Eggs in Winter (A. D. E.).**—You cannot do better than read the article on this subject on page 121. If you obtain a good breed, and carry out the instructions referred to, you may hope to succeed in your object.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Baromet- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In - sun.	On grass.	
1881.										
Jan.										
Feb.										
Sun. 30	Inches.	deg.	deg.	S.	deg.	deg.	deg.	deg.	deg.	In.
Mon. 31	29.174	43.8	43.2	S.	34.5	48.4	41.8	52.0	35.8	0.055
Tues. 1	29.521	37.6	37.3	W.	35.7	48.0	35.2	79.8	28.4	—
Wed. 2	29.816	33.6	33.3	N.E.	36.0	38.2	31.4	45.4	28.6	0.012
Thurs. 3	29.744	41.7	40.8	S.	36.3	49.4	32.6	49.6	33.6	0.274
Friday 4	29.670	48.7	48.4	S.W.	38.1	52.7	41.4	57.7	40.3	0.012
Satur. 5	29.444	47.3	46.6	S.	40.1	51.7	46.3	57.8	41.7	0.050
	29.413	40.8	39.4	W.	41.2	48.5	40.6	68.8	39.6	0.013
Means.	29.540	41.9	41.3	·	37.5	48.1	38.5	58.7	35.4	0.416

#### REMARKS.

30th.—Mild, calm, and showery.  
31st.—Fine, with some bright sunshine.  
1st.—Foggy and colder morning, clear in middle of day, fog again after 3 P.M.  
2nd.—Damp and showery, heavy shower at 3.10 P.M.  
3rd.—Damp, mild, and showery.  
4th.—Slight rain in morning, rest of the day fair but overcast.  
5th.—Rain first part of the morning, fine with sunshine after 11 A.M., windy and rainy after 9 P.M.  
Temperature above the average; that at 9 A.M. has averaged more than 20° higher than the week before last. The means for the three successive weeks have been 21.7°, 30.7°, and 41.9°, an excessive if not unprecedented rise.—G. J. SYMONS



17th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
18th	F	
19th	S	
20th	SUN	SEXAGESIMA.
21st	M	
22nd	TU	
23rd	W	Society of Arts at 8 P.M.

## ROSES ON THEIR OWN ROOTS.

**B**EING but a dwarf in the Rose-growing world, and having only a few hundreds of plants to the thousands possessed by other lovers of the queen of flowers, I almost hesitate to question the decision arrived at by "OXONIAN" (see page 86) on this subject as connected with the National Rose Society, and the list of such Roses as will do well thus started. "OXONIAN" thinks such a list would be "premature." If by that word he would mean imperfect I certainly agree with him, but even an imperfect list would be a great advantage to many, and I cannot but hope that the idea will be acted upon.

"OXONIAN" says, "To produce Roses on their own roots is a very slow process." Well, I cannot help thinking that with many Roses it is much quicker than on the foster parent. What is the process? Take Manetti. Suitable shoots have to be selected, the eyes carefully (and not infrequently carelessly) cut out—this is a great consumption of time—then these are planted close together. The following autumn the cuttings that have grown are taken up and replanted in beds suitable for budding in the following season. Sometimes they are budded the year after planting, but this is not the ordinary plan. Now, take a batch of Rose cuttings. Suitable pieces have to be selected. So far the Manetti and the Rose are equal, but in the latter after the preparation of the base of the cuttings no eyes require removal. This time, therefore, is saved, and the cuttings may be inserted the same as Manettis and left to their fate, and the following season many will bear respectable blooms, and with attention make good plants to transplant in the autumn. It seems to me, therefore, that the process of making a Rose plant "fit for sale" is not so slow as the budding process, and I wonder it is not more adopted.

For some years on a small scale the experiment has been made by me. In 1879 I inserted between four and five hundred Rose cuttings, the greater portion in the autumn, but a quarter perhaps at the spring pruning. Well, last year in the autumn I had nearly fifty plants put out, and quite two-thirds of these were as strong in growth and as vigorous in appearance as the plants I ordered from nurserymen. One or two had made such growth that I was able by careful division to make two plants. These I have planted in two lines by themselves, and I shall be able to compare their flowering with their neighbours.

It is somewhat strange that only two varieties grew amongst the spring-planted cuttings—Hippolyte Jamain and La France ;

and among the autumn-planted cuttings these two varieties also distinguished themselves. Other successful sorts were Charles Lefebvre, Gabriel Tournier, Sophie Fropot, Camille Bernardin, Marie Baumann, and Pierre Notting. I daresay that in my ignorance I am only advancing an idea which every Rose-grower knows, that it is the thornless varieties that are the best in striking from the cuttings. Certainly the great majority of those named above are comparatively free from thorns, and I cannot help thinking that a very thorny stem is against the close fitting of the soil to it when planted, and hence failures occur ; at any rate the close fitting of the soil is essential to success.

I agree with "OXONIAN" as to Maréchal Niel not liking its own roots, and yet there is a sort of exception to this. I say a sort of exception, because I am not certain what the effect would be were the plant cast off to shift for itself. I mean when the long shoots of Maréchal Niel are bent down and layered the growth appears to me more vigorous. I have seen this frequently, and where it can be conveniently arranged I believe it to be the best way of growing that beautiful variety. Neither does in my experience the Maréchal like Manetti as a foster parent, the Briar and Gloire de Dijon stocks seeming to suit it best.

There is no doubt that in deciding on stocks, if we would be successful regard must be had and special attention given to the soil. In a general way it may be said that Teas do not like the Manetti but succeed on the Briar, and, I write hesitatingly, I think they would do on their own roots.

In the case of the Hybrid Perpetuals it is often hard to say on what roots they are. Many budded on the Manetti after three or four years are certainly well established on their own roots and have discarded the foster parent, which is absolutely dead below the point of insertion of the original bud. Such a plant may be said to be growing luxuriantly on the Manetti, whilst the very reverse is the fact.—Y. B. A. Z.

THERE is an exception, it is said, to every rule, and I can adduce an instance in favour of Maréchal Niel thriving admirably on its own roots, notwithstanding the dictum of "OXONIAN," who on page 86 wrote as follows—"Maréchal Niel I am certain will not do well on its own roots." But first I must say that I do not believe the rule thus laid down is established ; yet assuming for the moment that it is, I will submit my exception, and if "OXONIAN" can publish better results from any stock in his possession I will admit my position is weakened.

Last autumn I was at Norris Green near Liverpool, the owner of which, Mrs. Pemberton Heywood, is a great admirer of flowers generally, and Roses, perhaps, particularly ; and Mr. Bardney grows them, especially Teas, under glass probably as well as any private gardener in the kingdom. Now it is curious that the only Rose that this cultivator could not grow satisfactorily was Maréchal Niel. He followed out the notion that it must be "worked," and tried various stocks, but with none could he attain the high standard of excellence that he sought. At length after hearing and reading so much that this grand Rose would not thrive on its own roots, he thought there would be no harm in adding one more to what he thought a long list of failures. He inserted cuttings, which rooted freely, and the plants started so well that he thought they were worth repotting. They were potted and managed similarly to

Gloire de Dijon and other varieties, and at the close of last year no plants in the collection, not even the vigorously growing "old Glory," were finer than those of Maréchal Niel. I think they were in 9 or 10-inch pots (but I write from memory and am open to correction by Mr. Bardney), and there appeared to be two or three growths from the plants, each, say, 20 feet long, of short-jointed, firm, matured wood. I have not a doubt that if tested one of these plants would produce a hundred flowers within three years from the time the cuttings were inserted. They were, if I remember rightly, struck from young wood inserted in sand and placed in a heated pit or propagating house. Mr. Bardney might well say when and in what manner the cuttings were struck and the plants grown that I saw in such splendid condition. That Maréchal Niel will do well as struck from cuttings in the manner indicated I know well, having struck hundreds of plants, which in due time produced hundreds of flowers; but I never saw plants so fine as those referred to, and I am sure the cultivator might usefully detail his practice that has proved so sound and successful.—A. ROSARIAN'S GARDENER.

#### EARLY PEAS.

I READ Mr. Iggliden's able article at pages 85 and 86 on the above subject with much interest, but cannot quite agree with him when he says "that in his opinion late autumn sowing is often a waste of labour and seed," for through the last three severe winters late autumn sowing has proved a success with me, but I know that early autumn sowing followed by severe winters will often be a failure. Early autumn I take to be October; late autumn, November. If sown in the former month, the ground being warm, the seed soon germinates, and the growth is too high above ground to withstand 20° or more of frost, but if sown about the middle or third week in November, the growth, if it appears above ground before very sharp weather sets in, can be more readily protected.

I usually sow about three quarts of Peas on a south border between the 12th and 20th of November, the ground being dug and the seed sown the same day in drills 4 feet apart, and about 4 inches deep, being about 1½ inch deeper than the usual spring and summer sowings. A row of hardy Cos Lettuce is also planted midway between the rows. The weather being open and favourable the young plants made their appearance about the middle of December, and as soon as visible in the rows a draw hoe is taken and a little earth is drawn over, enough to just cover them, as if this is not attended to the birds will destroy them, and if severe weather sets in the frost would probably injure them. About ten days later the young plants could again be easily seen in the rows, when a little more earth was drawn over them, not more than half an inch in depth, and soon after this the hard frost and snow commenced. Between January the 11th and 17th more than 20° was registered each night, and on the morning of the 21st 28° were recorded; but the snow undoubtedly is one of the best protectors to vegetation, and when the snow melted the Peas appeared to have grown a little. At the present time they are about 1½ inch high, and do not appear to have been injured by the weather.

The varieties sown were William I. and Dickson's First and Best, two quarts of the former to one of the latter. William I. appeared above ground a week earlier than First and Best, although sown the same day. Peas sown at this time have with me been usually ready to pick a fortnight earlier than those sown of the same varieties in the open quarters in February. When those sown at that time and in March appear in the rows I draw a little earth over them, as I have found it the best method of protection from birds, but it must be done just when the ground cracks and the tips of the shoots can be seen. If cold east winds prevail so that little growth is made the birds are often so troublesome as to necessitate another covering of earth, but if the wind changes round to the south with warm showers the young plants will quickly shoot through their covering of earth. This method of protection from birds I have found more easy and efficient than white cotton or worsted.

Early Peas I have found will not succeed well if sown on heavy land, the wet in my opinion being more prejudicial to them than the cold. Several good varieties of Peas have been named of late, with selections of vegetable seeds in the Journal, but there is a variety generally well known not brought into notice so much as it deserves to be. It was considered twenty years ago to be one of the best for productiveness and quality, and the same may be said of it at the present time. The variety I refer to is Champion of England. Out of nearly thirty quarts I sowed last year of several varieties this old one was unsurpassed. Of the latest new

and expensive varieties I have had no experience. Two profitable varieties are Auvergne (syn. White Scimitar) and Laxton's Supreme, both from 5 feet in height, but their quality is not so good as Champion. Two good dwarf Marrow Peas of the older varieties are Veitch's Perfection and Yorkshire Hero.—A. HARDING.

#### LILIUMS FROM SEED.

THE following notes on growing and flowering Liliiums from seed are the results of my own experience. I cannot state any fixed time for the plants flowering after the seed is sown, for I believe it varies according to varieties and treatment as regards heat and attention. On November 4th, 1872, a quantity of seed of *Lilium auratum* was gathered, and sown on the following day. The compost used was equal parts of turfy loam, leaf soil, peat, and river sand, adding a small quantity of charcoal. Similar compost was employed until the plants flowered, each year using it a little rougher than before. Moderate-sized pans were filled to within an inch of the rim, and the soil made level. The seed was sown rather thickly, and covered a little more than its own thickness with peat and river sand. The pans were plunged to their rims in ashes in a cold frame, and after nine days watered through a fine rose, and covered thickly with moss and kept moderately moist. Towards the end of July, 1873, the seedlings made their appearance, and in November of the same year a few of the strongest were pricked-off in pans and returned to the cold frame and plunged as before. During the summer of 1874 the pans were stood outside at the back of some pits, and in December the seedlings were transplanted and the pans again plunged in the frame. In the spring of 1875 they were stood outdoors in partial shade, and during summer a few of the plants formed one small flower bud each, but not having sufficient strength the blooms did not expand. The plants remained out until October, when all were transplanted, the largest bulbs being placed in 48-size pots and plunged in a cold frame until March, 1876, when they were taken out and again stood outside, and in July we were rewarded with some fine blooms. Thus, under the cool treatment, it takes three years and eight months to obtain good flowers. I have no doubt that by employing heat and paying close attention to the plants that *L. auratum* can be had in bloom in two years and a half from sowing the seed, as has been stated; still, without doubt the cold treatment is best.

We have *L. giganteum* sown in 1876, and shall expect the plants to bloom in 1883; *L. Humboldtii* sown in 1877, we expect to bloom this year, 1881; *L. pardalinum* sown in 1876, flowered in 1880; *L. dalmaticum* sown in 1878, we shall expect to flower in 1882 or 1883. *L. Kramerii*, sown in 1877, are as yet very small, but may bloom in 1883.

The *L. tigrinum* section and *L. longiflorum* are raised with us by bullets from the stem, and take three to five years to get a good flowering bulb.—THOMAS TAYLOR, *Gardener to J. McIntosh, Esq., Duncevan.*

#### THE USES OF VEGETABLES.

THE practical and suggestive remarks of "WILTSHIRE RECTOR" in the Journal of February 3rd on the vegetable supply, open a wide and important field for discussion.

Whether or not the demand would keep pace with the supply or *vice versa* were fruit trees more extensively planted, time and the future seasons could alone determine. But at least wherever there is suitable and unoccupied ground the experiment might be tried; and the advantages to the owner of possessing garden produce instead of purchasing must be obvious. In fields, pleasure grounds, even in parks, Apple trees are as ornamental as Thorn trees, Walnut trees are stately and fragrant to the touch, whilst Plum and Cherry trees might line our roads as they do so many of the highways in Germany and other Continental States. But vegetables even more than fruits enter into our daily fare, and they would do so still more, as "WILTSHIRE RECTOR" shows, but for prejudice and ignorance as well.

Valuable, almost indispensable, as the Onion is, many persons cannot partake of it owing to its strong and to some repellant flavour; yet were it more generally known that a far more delicate and equally efficacious flavour is to be obtained by scalding or boiling the Onions first in water or skim milk, they might be even more universally used and appreciated.

Jerusalem Artichokes (amongst the lightest and most digestible of vegetables) may be used whole, mashed in fricasees, or in soup (*en purée*). They hardly require cultivation, only room.

In rural districts, unless you grow your own, the supply of vegetables is very uncertain. Here and there you find cottagers sell very fairly, rather under than over the price in market towns,



calculating that it is better to have sure customers at the door rather than risk the expense and loss of time in transit and the precariousness of finding purchasers. Owners of large private gardens do not like the trouble and delay of attending to small consumers, preferring rather to dispose of all spare produce wholesale to the greengrocers. On the other hand, where there is little competition, we often pay more in the country than in a town, not for vegetables only, including Potatoes, but for butter, eggs, and poultry, which, affecting to be ruled by market prices, whatever the quality may be, almost invariably stand at the highest figure touched at the current market day of the week.

That we do not make the most of our vegetables I freely admit. Practical though our national qualities may be, patience, perseverance, and thrift in cooking are not yet characteristic of our kitchens. Most vegetables, except, perhaps, Green Peas and Asparagus, can hardly be too much cooked, and most can readily be used up again. Potatoes, Parsnips, and Carrots are well fitted for the frying-pan when they have first been boiled. Stewed Celery and stewed Cucumber are amongst the *crème de la crème*, and if served with a *souppçon* of good curry powder well blended in the same, might with macaroni make a course of themselves. An excellent pudding may be made of mashed Vegetable Marrow, sweetened and flavoured. In short, it is the will that is wanting. Hard indeed it is to find anything understood but waste. The gathering-up the fragments, the making the most of them for ourselves and others, goes still against the grain of our generous but mistaken English nature. Scientific training has still much to do in teaching just proportions and sounder knowledge.—A. M. B.

#### THUNIAS.

IN most collections of Orchids, however small, at least one species of *Thunia* finds a place, and they all well deserve attention, for if carefully grown they are really handsome plants. All the *Thunias* are natives of the East Indies, consequently they require a moderately high temperature when growing. They are sometimes apt to be disappointing. I have experienced disappointments, and have seen good Orchid growers fail in flowering them satisfactorily some seasons. Each grower no doubt has a special method of growing these plants as with many others that come under his charge, but as it may afford a hint to someone I will state my experience, success, and disappointments.

*Thunias* are, I believe, strictly speaking epiphytes, found growing on the trunks and branches of trees, and should therefore be treated as such. I do not mean by this that they should be grown in baskets or blocks, for undoubtedly they succeed best in pots. They will soon be starting into growth, and should be carefully examined so as not to allow them to remain so long in their winter quarters as to check the young growth. Some gardeners repot their plants annually; others allow them to remain for a couple of seasons in the same pots or pans, the second year only removing a little of the old soil from the surface, and giving a top-dressing of fresh compost. I prefer repotting every season, as *Thunias* are rather strong-rooting plants. I have tried several composts and do not advocate a rich material. Two years ago I potted my plants in good fibry loam, peat, and dung, supplying abundance of liquid manure when they were well established; the result was vigorous growth and no flowers. I never saw finer growths, some of them were between 4 and 5 feet long and nearly an inch in diameter. I was greatly disappointed at this, for I had taken much care with them. Last season I was more successful, treating them somewhat differently, potting them in fibry peat, sphagnum, and plenty of silver sand. The result was short stout growth and plenty of flower; some of the spikes of *T. Marshallii* had as many as eight and nine flowers. When I next pot them it will be in a poorer compost still, employing a fine peat and more sand.

The best time for potting is when the young growths are pushing, using clean pots or pans as the case may be. Drain the pots thoroughly, and over the drainage a thin layer of sphagnum or coarse leaves should be placed, to prevent the finer particles of soil passing into the drainage. Pots of various sizes may be employed—a 48-size pot is suitable for strong plants, and 32's may be used for three plants, placed in the form of a triangle. If good large specimens are aimed at, five or six plants or even more may be placed in a pan. The pots should be filled to within about a couple of inches from the top with the compost. Place the plants in the position they are to occupy, and secure each of them to stakes, then fill in the compost to within half an inch from the top of the pot, and surface with a little chopped sphagnum and silver sand. If the growths are very long it is a good plan to bend them down so as to have them nearer the glass.

They should occupy a light position in the stove, watering rather sparingly till the roots begin to take hold of the soil. After they are well established abundance of water will be necessary—in fact, they should never become dry at the roots when growing. When the flowers are showing the plants will be greatly benefited by occasional supplies of liquid manure until the flowers commence expanding. By removing the plants to a cooler and drier house the flowers remain longer in perfection. After flowering has ceased and growth is finished they should be gradually exposed to the sun to ripen their growths, water also should gradually be withheld. The foliage will soon change colour and ultimately fall off, after which time they may be stored away in any cool house where the temperature does not fall below 45°, keeping them dry until the following spring. *Thunias* are readily propagated by cuttings. Take off the tops of the last-made shoots, insert them in a sandy soil, and place them in bottom heat in spring. All the species of *Thunias* are all worth cultivating, requiring identically the same treatment. *T. Bensoniæ* and *T. Marshallii* are by far the largest and most showy.—W. K.

#### CORREA CARDINALIS.

THE woodcut (fig. 26) represents a small branch of this attractive greenhouse plant, which is generally grown in gardens where



Fig. 26.—*Correa cardinalis*.

the numerous handsome Australian plants are adequately valued. The corollas are tubular, as shown in the figure, an inch or two in length, of a brilliant crimson scarlet hue tipped with green; and as the slightly pendulous flowers are produced singly from the axils of nearly every leaf towards the apex of the shoots, a few specimens of moderate size, say in 48-size pots, are of considerable beauty on the stages of a greenhouse or conservatory during autumn or winter. The plant is not quite so compact as other forms in the genus, therefore a little judicious pruning is required, shortening the long straggling shoots, but with that exception its cultural requirements are similar to most *Correas*. A soil

of turfy loam, peat, and sand, such as is prepared for the majority of allied Rutaceous plants from the southern hemisphere, thorough good drainage, and careful supplies of water are requisite; and with attention to these matters, and ensuring the maturing of the growths in summer, either by placing the plants out of doors on a firm bottom of ashes in a slightly sheltered position where protection can be afforded from heavy rains, or by arranging them in a cool well-ventilated portion of the greenhouse, satisfactory results can be readily obtained.

*Correa cardinalis* was so named by Dr. Ferdinand Mueller, the well-known Australian traveller, who found it in several districts of that continent, particularly Victoria and Gipps' Land. Seeds were sent to Messrs. Veitch at Exeter about 1854, from which plants were raised and distributed.—L.

### THE RESULTS OF HORTICULTURE.

IN our rambles on the south coast we may occasionally meet with *Brassica oleracea*, a small unattractive plant, but of inestimable value on account of its being the parent of a large section of culinary vegetables which have contributed so much towards the health and sustenance of the population. All our fine Cabbages, Cauliflowers, Broccoli, Brussels Sprouts, Scotch Kale, and some Borecoles owe their origin to this little weed. Had not some accidental circumstances brought this plant under the observation of the horticulturist, it might have remained in its native haunts to this day, and we should not have known these indispensable additions to our gardens that we now possess. It is very strange what varied forms have resulted from cultivation, and what a small resemblance some bear to the original: some are quite hardy while others are destroyed by frost, and they have adapted themselves to our requirements in a surprising degree, so that we may have them in season the whole year round. What appears most strange is that these varieties have almost constituted distinct species by retaining the power to reproduce their characters from seed. Most horticultural productions show a tendency to return to the original, but with the Brassicas the inclination is to stray further away and to sport into greater variation. When they are grown in large quantities for seed it is the custom to go over the rows and pull out what are termed rogues, which are those that show a slight variation from those intended for seed, but I fancy if those were planted by themselves some of them might prove useful additions. Every seedsman appears to have a collection of his own, and it is possible we may have something that will differ as much from a Cauliflower or Brussels Sprouts as they differ from the original parent. Although the external form has assumed such varied shapes the internal structure remains the same, as will be seen when in flower; and it may then be said that we do not know a Cabbage from a Cauliflower, and many would not from the flowers alone. In other tribes of plants credit is taken for having obtained crosses, but in the Cabbage tribe it is usually left to Nature; yet something in that way might be done, although it is difficult with all things in the open air, but it deserves attention.

Much may be said on the cultivation of each variety, but it is sufficient to show what great results have been obtained from a comparative insignificant origin. Also I should direct the attention of gardeners to the blanching of vegetables. Many are rendered more palatable and delicate by being blanched, and I think others may be added to our list if experiments are carried out in a judicious manner and proper attention is paid to the subject.—R. C.

### THE EFFECTS OF ELECTRICITY ON VEGETATION.

(Continued from page 89.)

THE very great significance attaching to the terms "positive" and "negative" render it all-important that the distinctive differences in their contending actions pertaining to the atmosphere should now be fully recognised and comprehended in order to sufficiently realise the results, for as everything in life and growth depends primarily on the contention of these two opposing forces, it is absolutely essential that they should be rightly understood. Their antagonistic powers may be likened to the planting a tree with one hand and pulling it up again with the other, or driving a nail with the face of a hammer and drawing it out again with the tail. For the plant, the positive condition prepares and provides the food, but it is the negative that causes its digestion and appropriation; and should there be any check or cessation in either, so as to destroy the even balance, unhealthiness or even disease becomes the inevitable consequence.

In order that there may yet be no further confusion of terms it will be desirable to restate the attendant results of these separate

conditions of force. It has been observed that every electrified substance is invariably surrounded by an electric state of the opposite character; thus a positive is attended by a negative, and a negative by a positive. Then, again, in the electric decomposition of water, for instance, consisting of one volume of oxygen, which is a negative, to two volumes of hydrogen, and these being positive, the negative oxygen goes to the positive electrode, whilst the positive hydrogen passes to the negative. These consequently were designated by Faraday as "ions," from the verb *eo*, I go—*ions*, going; hence, one class of elements become ions to the positive, whilst the other class are ions to the negative; and in the decomposition of all compound substances whatever, they being composed necessarily of a positive and a negative, this rule is strictly adhered to, each one going to its respective quarters.

It is commonly supposed that plants possess some kind of power that enables them to select their food as if they were endowed with intelligence sufficient to direct them in "what to select and what to avoid." That there is some degree of selection made is perfectly true, but then it is wholly in accordance with this law of electrolysis to which they are helplessly subservient, and most assuredly not by any power of volition on their own part; hence it becomes perfectly easy and certain to be able to predicate the direction in which any particular elements will pass.

With respect to the atmosphere, this is composed of two simple gases—oxygen and nitrogen, together with two other gaseous compounds—carbonic acid and water, the whole being more or less contaminated with soot, fungus spores, and minute particles of dirt of almost every description. It is, however, only the two former gases which constitute the atmospheric air proper, the others being adjuncts, continually varying in their proportions. These, however, are but the "materials" of growth; the "modifying principles," alluded to by Sir Humphry Davy, consist in the atmosphere being charged with electricity.

Unlike water, the gases of which are combined together chemically, the gases of atmospheric air are only mixed together mechanically, so that the least possible degree of attraction is enabled to separate and appropriate the oxygen, as also the nitrogen. The extreme wisdom of this arrangement is manifest in thus providing a starting point, requiring only the smallest possible amount of force to upset that stationary equilibrium which, once disturbed, goes on accumulating in intensity, like the stone rolling down hill, until the highest working power has been attained. Then, in order to secure the breaking-up of the *vis inertiae* of these gases and to acquire the first step in the movement, the electricity of the atmosphere comes in as an indispensable agent. In its normal state the atmosphere is electro-positive, and consequently the earth beneath it is necessarily electro-negative. Now, the immediate consequence of these opposite states is that any substance placed partly in the earth and partly in the air becomes polar by induction, like the wire at page 355, and hence an attracting power is thus imparted to one end to the exclusion of the other, which causes it to seek out and combine with the oxygen chemically, leaving the nitrogen unaffected by its selection. In this chemical combination of elements a further degree of electrical force becomes developed, and this in its turn again leads, by induction, to a still greater measure, and so heaps up a continuous supply as the force becomes utilised in the products of growth. The plant, situate with its roots in the ground and its head in the air, is first dependant on the air and the earth for its primary polarisation, and this again has to depend upon the intensity of the opposition, or amount of polar energy between the earth and the atmosphere. Hence, as dry vegetable matter is a very bad conductor, it is essential in the first place that the texture of the plant should be fairly supplied with moisture. Then as fluids charged with certain salts in solution are much better conductors than plain water, we have in this one means of exciting a more energetic degree of polarity. Following upon this the leaves and stems are made more powerfully attractive of oxygen as the next stage in the process.

Now with respect to the atmosphere. This is continually varying in its intensity as well as in its direction—that is, from positive to negative and back again, and it is to these changes that we have to attribute the many fluctuations and differences of situation, as well as the various abnormal conditions of growth. When the gardener complains of "want of strength in the air," this want of electric energy is one great source of the weakness, if not the principal one. Leave a steel magnet without its soft iron keeper and it soon loses its magnetism; but this may be speedily restored by rubbing it in a certain direction with another magnet. The same loss is ever being experienced by the atmosphere, but here it is renovated in a different manner. It was shown practically on the lecture table by Sir William Grove that



a beam of light produces heat, electricity, magnetism, motion, and chemical action, and hence we have in the sun's rays a most powerful renovator of the earth's atmospheric electricity, as well as of its heat and chemical action, &c. One of the most obvious effects of the sun's polar influence on the leaves of trees is in keeping them constantly with one particular surface upwards, in accordance with the laws of "opposites attracting;" whilst the reverse, or of similar states repelling each other, is as strikingly evidenced in the leaves, branches, and roots avoiding contact and steering clear of one another as if they were endowed with sight and intelligence.

But as the sun's rays have to pass through our atmosphere to reach the earth's surface it will be obvious that the condition of the air it has to penetrate must of necessity exert a material influence upon its results; hence it is that different localities, with their artificial surroundings, have a most important bearing on the present question. It is an essential point that the electrical condition of the atmosphere should be positive; hence any admixture of soot, which is carbon or charcoal, and is a most powerful negative, must have the effect of weakening or counteracting its positive tendency, and thus lessening the required polarity between the earth and its atmosphere. Then, again, in addition to this visible contamination of "blacks" in the air there is, if possible, a more serious evil still arising from our coal fires not at first so readily apparent. On looking at a freshly made up coal fire a flickering flame will be observed playing amidst the smoke as it ascends, and every now and then a jet of intense brightness bursts forth, goes out, and relights again and again; but in these intervals of going out the unignited gas ascends to mix into the atmosphere above and become an invisible cloud, the more solid particles of the soot settling down to the earth or its tenants. The dry outer bark of trees being positive the negative soot is attracted and adheres to the surface, as it does to every other exposed positive—our own skins to wit. Now the combination of carbon with oxygen is heavier than air, but the solution of carbon in hydrogen—as in coal gas—is lighter than the air, and thus maintains itself in a stratum up aloft, whilst the former descends to the earth's surface, and thus becomes suitably situated for being utilised by vegetation. To be convinced of the quantity of carbon thus held in solution and invisible, hold a piece of cold iron, tin, or glass in a gas flame, and it will immediately become coated with soot, which is the precipitated carbon. But the upper invisible stratum of contaminated air escaping from our chimneys will have its negating influence in modifying the sun's rays, hence it is from these facts that in the neighbourhood of smoky districts the air is "not strong enough." Then again, the proximity of buildings tends not only to destroy the polarity of the atmosphere, but they absorb so much of its moisture as to render the air highly siccative instead of being a carrier of moisture to the vegetation.—W. K. BRIDGMAN, *Normich*.

#### HARDY ROSES.

In the "Rosarians' Year Book for 1880" I had a short paper giving the survivors of some beds of exhibition Roses budded some eight years before. The list of sorts will be found by any readers interested in the matter in that volume. Since the paper was written two winters of more than ordinary severity have occurred, and yet some varieties remained alive and healthy. If the sorts seem to you worth recording please give the list which I subjoin.

##### ROSES OF WHICH YOUNG WOOD IS ALIVE ON FEB. 4TH, 1881.

H. Teas.—Cheshunt Hybrid	H.P.—Clotilde Rolland
H.P.—Edward Morren	Duchesse d'Aosta
Caroline de Sansal	François Fontaine
H.C.—Miss Ingram	Camille Bernardin
Paul Verdier	Mad. Clemence Joigneaux
H.P.—Madame Laurent	Emily Laxton
Madame Victor Verdier	Marchioness of Exeter
Abel Grand	Mons. Boncenne
Centifolia Rosea	Princess Mary of Cambridge
Dr. Andry	La France
La Fontaine	Thomas Mills
Mad. Thérèse Lévet	John Hopper
Princess Louise	Duke of Connaught
Maurice Bernardin	

Nearly all the Jules Margottin race stand; the English Roses of real English raising; and amongst dwarfs Dr. Andry, Madame Victor Verdier, Thomas Mills, Maurice Bernardin, and Duke of Connaught.—GEORGE PAUL, *The Old Nurseries, Cheshunt*.

NATIONAL ROSE SOCIETY.—I think that your correspondent, "WYLD SAVAGE," has (see page 87) omitted in the causes of the Society's success one very important one—viz., the manner in which it is officered. The zeal, tact, and judgment of our senior

Secretary, the painstaking and care of our junior Secretary, and the prudence and good management of our Treasurer, clearly show that few societies can boast of such a staff, and I think it is only fair when the success of the Society is spoken of this fact should be recognised.—F.

#### FRENCH AND ENGLISH EXHIBITIONS.

As the season for flower shows is now coming on, and, so far from there being any likelihood of a falling-off in the interest attaching to them, that interest seems rather on the increase—one remarkable proof of that being the announcement of the great Exhibition at Manchester in September with its prize list amounting to nearly £2000—it may not be out of place to again draw attention to a subject which has been often mooted, the great difference between English and French exhibitions; and I do this the rather because a paper has been forwarded to me by the Vice-President of the National Society of Horticulture, giving an account of a remarkable step taken at the Congress of the various Geographical Societies last August, and which endeavours in that thorough way in which the French carry out an idea to combine instruction with pleasure.

It would appear, then, that on the occasion of this Congress of Geographical Societies held at Nancy, the Secretary General of the Geographical Society of the East of France invited the Horticultural Society of Nancy to take part in its proceedings, on the plea of decorating and furnishing the approaches and hall of the Palace of Stanislaus, where the Congress was held, on a plan never before attempted in floral exhibitions. The idea was eagerly taken up by the President of the Horticultural Society, who urged his colleagues to profit by the occasion and give an example of a complete and instructive exhibition. Time did not permit the plan to be carried out as completely as it was wished, but enough was done to draw attention to an entirely novel idea which might be carried out more fully under more favourable conditions. The plan seems to have been to get together a number of the more recent introductions, and to print a catalogue referring to these plants, which occupied 167 pages, giving full particulars of everything relating to the plants. Take as an example of the minute care with which this is done, so characteristic of that attention to detail which is so marked in all French arrangements, the following—

##### CENTRAL AND EASTERN ASIA.

1501. CHAMEROPS FORTUNEI, *Hook.*; Ch. excelsa, *Mart.* (*non Thumb.*).—Hemp Palm. (Palms). Ornamental and industrial (mats, ropes, hats, and waterproof garments).

China and Himalaya, in its natural state, snowy valleys.—*Tche Kiang, Le Père A. David*, 1868.

Cultivated on the eastern coasts of China between 25° and 35° lat.; in the island of Chusan, 30° lat.—*Robert Fortune*. At Peking with protection during winter, and at Canton in gardens without protection.—*Le Père A. David*.

Introduced by Robert Fortune; sent out by the Royal Horticultural Society. In the north-eastern provinces of China. 1843–45, 1853, 1856.

Full-grown specimens presented by M. Crousse, horticulturist at Nancy. Seedlings presented by M. Gallé from seed obtained in the open air at Segrez (Seine et Oise) from plants which had lost in 1870–71 all their leaves, and produced seed in 1878. Leaf presented by M. Gallé, cut from a plant which had lived out of doors with protection during the winter of 1879–80.

When we add that the principal groups were marked in large diagrams, giving a view of the different portions of our continents subdivided into the different regions according to their latitudes and principal productions, and that each plant had its number corresponding to that in the catalogue, it will be seen how much pains were taken to make this portion of the Exhibition full of teaching to all who chose to profit by it. Nor was art forgotten. Vases and bronzes from Japan and China were exhibited to show how the native artists had used their own flowers and fruit to produce that wondrous beauty of form and colouring which has excited the wonder and admiration of artists in this country.

And now is it possible that such a plan could be carried out with any prospect of success in this country? Those who have, like myself, marked the difference between the manner in which exhibitions are conducted in this country and in France may well doubt if it could be so—i.e., Would it be possible to make our exhibitions instructive as well as pleasing to the general public? True, this was a geographical exhibition to which the botanical was simply an adjunct, but it is evidently the idea of M. Joly that this might be applied to horticultural exhibitions. But see how different is the manner of conducting such. There is a deliberation—nay, a solemnity, about the French method which is strangely at variance with their generally received character. The Jury take a whole day to deliberate, and the exhibitions being



open for some days, everything is carefully and minutely examined. With us all is rush—a rush for the exhibitors in the morning to get their exhibits ready; a rush for the judges, who have at most a couple of hours to get through their work; a rush for the visitors, who gallop round the exhibition, and then go forth to listen to the strains of music or to promenade; a rush to get home again at night—much enjoyment all the while, but at the same time an enjoyment that must be got through. And as we like to travel express and get to the end of our journey as fast as possible, so our French neighbours are contented, save on the English frequented lines, to travel deliberately, as if time were no object. This difference makes it doubtful whether the experiment is likely to be tried here; and yet if anywhere Manchester at their great Whitsuntide Show would seem to be the fittest place to try it in. There the Exhibition lasts several days; there thousands of visitors, and many of them from the artisan class, attend; and there is there an indefatigable Secretary who is used to everything of the kind, and whom no exertion seems to tire; and it might possibly be that an attempt of this kind would tend to give a character to our flower shows which would save them from the charge often made against them of being merely a pastime instead of a source of profit and instruction; and botany and horticulture are so inseparably connected that what would influence one would react on the other. The botanical collector coming upon some hitherto unknown treasure does not merely think of the specimen he may prepare for his herbarium, but also of the figure his newly discovered plant may make some day in the stoves and green-houses of England; while he who goes out to collect for such plants as may commercially be useful to his employers often brings home, too, a plant which, though unsuited for this purpose, may yet be very precious in the eyes of botanists. Horticulture has profited by the zeal of botanists and *vice versa*, and in like manner this new idea of our neighbours may equally serve the cause of both. Is it likely to have a trial?—D., *Deal*.

#### CULTIVATION OF GLORIOSA SUPERBA.

ALTHOUGH *Gloriosa superba* has long been grown in English gardens, having been introduced from the East Indies about 1690, it is not nearly so common as it deserves to be. Its culture is extremely simple, and during four or five months of summer a moderate-sized tuber under ordinary treatment will produce hundreds of blooms. It should be in all collections of stove plants, for its quaint appearance and vivid colours are usually highly appreciated; the flowers also remaining fresh a long time when cut, and for specimen glasses for the dinner table I have found it invaluable. The tubers under my charge were imported five years ago from Ceylon, and have since then increased in size and numbers considerably.

Now is a good time to start them into growth, and my mode of procedure is to place a tuber of 5 or 6 inches in length in a 10-inch pot. The compost I have found them to succeed in admirably is good turfy loam, leaf soil, and a little dung from an old spent Mushroom bed with a good proportion of sharp sand. The pots should be carefully drained, as the plants require a plentiful supply of water at their roots when growing freely. In potting I place a little sand under the tubers and bury them 2 inches below the surface. Very little water will be required until growth commences, which is generally about six weeks after potting, they then grow rapidly and must have a plentiful supply.

Gloriosas delight in a good brisk moist heat, such as is afforded by an ordinary stove. Being a climbing plant it will require a support to train it to, and any form of trellis that might be thought desirable will do. I prefer to train them up the rafters of the stove, as in that position they occupy less space, at the same time it affords them a lighter and more airy position—an essential point in their culture in obtaining brightly-coloured flowers. If grown in a dry atmosphere the plant is liable to the attacks of red spider; plenty of atmospheric moisture and good syringing overhead night and morning are the best preventives. When in active growth an application of weak guano water at their roots twice a week will be very beneficial. After flowering they will show signs of going to rest; then gradually withhold water, and when the leaves turn yellow place the pots on their sides and allow them to remain so until next season.—W. JORDAN.

CHRYSANTHEMUM ETHEL.—Among a considerable number of varieties cultivated in the Cambridge Botanic Garden, none have been so particularly remarked and admired as this. It is a Japanese form, not very double, but of the purest white, with the distinctive feature of unusually broad florets. It is valuable for its long-flowering character, being among the first to open, and

now, the end of January, still in bloom. Another also is still in flower, the name of which appears to be Mr. Deleany, a variety of bronze-red colour. Both these are valuable, and were presented to the Garden by Mr. Wm. Bull.—L.

#### VEGETABLE SUPPLY AND CONSUMPTION.

As a housekeeper I am delighted to see this subject being taken up, for it is one that is in urgent need of consideration. If the quantity grown is as great as your correspondents assert, how do they account for the almost prohibitory price? I feel sure vegetables would be eaten if easily procured, fresh, and at a reasonable cost. All people above the really poor consume as much as they can afford or obtain, but they are now dearer in proportion than meat or bread, but cannot take the place of either, and, except Potatoes, are not so satisfying. All servants delight in fruit and vegetables, but mistresses can seldom supply much beyond Potatoes at present prices, for a good dish of Cabbage or Carrots, &c., costs from 9d. to 1s. Middlemen may have something to do with this, but even where they are sold at the stores the price is not much less. It would surely be worth while to bring plenty of cheap fresh vegetables if they are grown within the reach of the miles of respectable houses, where as a rule now they are rarely used for daily consumption. I believe there is some combination amongst the large dealers at Covent Garden to keep up prices and to destroy or keep away all that is beyond the wants of the present green-grocers. It seems to me the only cure would be for some of the large growers to open a store in some central place, say Oxford Street or Regent Street, and sell to customers at wholesale prices or a little above. There is a large store for meat in Oxford Street which failed I believe last year, but it seems well suited for such a purpose and might be combined with the poultry which is now sold there. It really seems sad that quantities of excellent food is daily utterly wasted because it cannot be brought within reach of those who so much need it.—F. R., *West End*.

#### PORTRAITS OF NEW AND NOTABLE PLANTS.

CEREUS FENDLERI.—“This fine *Cereus* is a native of the great Cactus region of the United States, where, according to its author, Dr. Engelmann, it inhabits rocks in alluvial river bottoms from Santa Fé to the Canon of the Rio Grande below El Paso, and from fifty miles east of the Upper Peros westward to Zuni, and the Aztec mountains and the copper mines.”—(*Bot. Mag.*, t. 6533.)

PITCAIRNIA ZEIFOLIA. *Nat. ord.*, Bromeliaceæ.—“This is one of the small number of Pitcairnia from Central America, with broad petioled leaves, large subsessile flowers, large clasping bracts, and seeds conspicuously tailed at both ends, which make up the section *Lamproconus*, published as a genus by Lemaire. Its nearest ally is the New Granadan *P. Funkiana* of A. Dietrich, which was figured under the name of *P. macrocalyx* at tab. 4705 of the “Botanical Magazine.” The present plant, although it has been known for a quarter of a century, has not been figured previously. It was discovered by Warewicz in Guatemala, and we have a fine specimen in the Kew herbarium, gathered by Purdie in the province of Santa Martha in New Granada about 1845. The drawing was made from a plant sent by Dr. Regel, which flowered in the Palm house at Kew in December, 1879.”—(*Ibid.*, t. 6535.)

NYPHÆA TUBEROSA. *Nat. ord.*, Nymphæaceæ.—“*Nymphæa tuberosa* is a native of lakes and slow-running waters in the north-eastern United States, and may be the plant alluded to by Nuttall as the European *N. alba*, with which it agrees in being nearly scentless. It is described as having the leaves green or yellowish beneath, but in our cultivated specimens they were of a pale dirty purple. The rootstock prolongs indefinitely, but the leaf-bearing tip alone is vigorous, the old part decaying as the new elongates. The tubers, which are 1 to 4 inches long, when fully formed break away from the rootstock, and float about till they are stranded and germinate; they resemble those of the Jerusalem Artichoke, and as many as thirty have been counted on 6 inches of rootstock. In shallow water both leaves and flowers rise high above the surface; in deep water the ripening fruit is drawn to the very bottom by the spiral coiling of the peduncle. Cattle devour the leaves; as do deer, which leave the woods at night to feed on them. The Royal Gardens are indebted to the Botanic Garden of Harvard University, U.S., for tubers, which flowered in July and August.”—(*Ibid.*, t. 6536.)

STATICE TATARICA. *Nat. ord.*, Plumbaginææ.—“With the exception of the Thrift—which is generally consigned to do duty as ‘edgings,’ and a few showy greenhouse species—the genus *Statice* has found little favour of late with cultivators; yet it contains many plants of singular beauty and interest.

Of these the palm must be given to the Canary Island species, introduced by the late M. Bourgeau, which were once the ornaments of a house at Kew devoted to plants loving the dry climate of the south of Europe, but which have long since 'gone out of cultivation,' S. Holfordii, *Hort.*, remaining as almost the only representative of the group. Amongst the south-eastern European ones are many hardy kinds of remarkable beauty, such as the subject of the present plate, whose flowering corymbs (of one plant) form together rounded masses a yard in diameter of delicate sprays studded with ruby-coloured flowers, each set in a silvery calycine cup, than which a prettier floral object cannot well be conceived. It is a native of saline districts in the south-east of Europe, from Dalmatia and Hungary eastward through Bulgaria and S. Russia to the Crimea and Siberia east of the Ural Mountains. S. tatarica was introduced into England in 1731 by Philip Miller, and is described in the first edition of his Dictionary as Limonium 5; it is perfectly hardy, flowers in June and July, and remains long in bloom."—(*Ibid.*, t. 6537.)

LYSIONOTUS SERRATA. *Nat. ord.*, Gesneraceæ.—"The temperate and subtropical regions of the Himalaya Mountains, especially in the eastern division of the range, abound in beautiful species of Gesneraceæ, of which a considerable number have been cultivated at Kew, and some figured in this work; and it is not a little remarkable that this species, which is the most widely distributed and one of the most beautiful of them all, should have so long been a stranger to our gardens. Unfortunately these Gesneraceæ of India are all stove or greenhouse plants, and in the case of the latter the wintering of them requires great care, as they cannot be exposed to the long cold of the English winter, and if put by in a greenhouse they are apt to start into growth too early; many of them, however, and the present in particular, form fleshy rootstocks which will stand a good deal of drought, though none possess such tubers as the American Gesneras, and which render them so easy of culture and of transportation.

"Lysionotus serrata is a native of the subtropical and temperate regions of the Himalaya, from Kumaon in the north-west to Bhotan in the east, inhabiting damp forests at elevations of 5000 to 8000 feet in Sikkim, descending to 2500 in Kumaon; it is also abundant at 4000 feet in the Khasia mountains, and is found on the Karen hills in Burma; its favourite sites are mossy rocks, banks, and old tree-trunks. At Kew it fills a square pan with stems a foot high, and seems quite at home in a subtropical heat, flowering in July and August; and in its native mountains the peduncles are often a foot long, and bear clusters of forty to fifty flowers, of which many open at a time. The plant figured was raised from seed sent by Mr. Gammie, of the Forest Department, Darjeeling. The pale whitish stripe along the nerves of the leaf is not common in the wild state of the plant."—(*Ibid.*, t. 6538.)

#### ASPLENIUM CICUTARIUM.

AMONGST the most numerous occupants of our warm ferneries I think none better deserves the attention of cultivators than *A. cicutarium*. It appears to be a comparatively scarce plant. Why this should be so is not easy to understand, for it is without doubt one of the most elegant of all cultivated Ferns. It has a rather wide geographical range, being found in tropical America from Cuba and Mexico to Peru, Abyssinia, and the coast of Guiana. It is of easy culture, and should find a place in every collection of Ferns however small. Where plants are grown for dinner-table decoration this species should be grown in quantity, for it is very suitable for that purpose, being exceedingly light and graceful in habit. The fronds attain the length of between a foot and 18 inches, and from 4 to 6 inches broad, with ten to fifteen pinnæ on each side. The lower ones are 2 to 3 inches long and about an inch broad, cut down to the rachis into numerous ovate rhomboidal pinnules, which are about half an inch long and about a quarter of an inch broad, obliquely truncate on the lower side, and cut down to the rachis throughout into linear or oblong segments, which are once or twice cleft at the apex. The rachis is compressed and often winged; the fronds are a bright green colour. It grows very rapidly in a mixture of fibry loam,

peat, and sand, with good drainage and a liberal supply of water at the roots.—A FERN GROWER

#### RHODODENDRON JASMINIFLORUM.

THE beautiful race of hybrid Rhododendrons so admirably adapted for cultivation in a warm greenhouse or cool stove, which have been produced by crossing the above-named species with several others, renders it of considerable interest apart from its own intrinsic merit. But as a decorative plant it is only surpassed by some of its progeny, and it is consequently a great favourite wherever it is grown. When a plant of moderate size is bearing several trusses of its pure white fragrant flowers it is simply charming. Such a specimen recently attracted my attention at Messrs. Veitch's Chelsea nursery, where it was flowering in company with several of the handsome forms raised by Mr. Taylor, and among which the one bearing his name was especially noteworthy for the size of the flowerhead and the delicacy of the tint.

The accompanying cut (fig. 27) represents a truss of flowers of *R. jasminiflorum* about the average size, the form of the corolla



Fig. 27.—*Rhododendron jasminiflorum*.

being also well shown. The species is a native of Malacca, where it was found by Mr. T. Lobb, growing at an elevation of 5000 feet upon Mount Ophir, whence it was sent to Messrs. Veitch by that traveller thirty-two years ago. The species that have been chiefly employed with this in raising the various crosses are *R. javanicum*, *R. Lobbii*, and *R. Brookeanum*.—L. C.

THE FRENCH VINTAGE.—It appears that, notwithstanding the injury done to many vineyards during the exceptionally severe winter of 1879-80, the French wine crop for 1880 showed an increase of ninety million gallons over that of the previous year, the total of the vintage being nearly 675,000,000 gallons. In the districts which have not been materially affected by the phylloxera, such as the departments of the Aude and the Haute-Garonne, the vintage was above the average of the last ten years (1,170,000,000 gallons); but in the two departments of the Charente, where the best brandy is made, in the Lot-et-Garonne, and in several others, the ravages of the phylloxera have brought the total down to the lowest point which it has ever reached. During the last ten years the exports of wine from France have varied between 90,000,000 and 63,000,000 gallons; but it should be added that during the same period the imports have been steadily rising from 2,857,000 to 67,500,000 gallons. The departments which produced the largest quantities of wine last year were the Hérault (112,000,000 gallons), the Aude (101,000,000 gallons), the Cha-

rente Inférieure (42,000,000 gallons), the Pyrénées-Orientales (39,000,000 gallons), the Gironde (37,000,000 gallons), the Gers (28,000,000 gallons), the Haute-Garonne (23,000,000 gallons), the Tarn (22,000,000 gallons), the Vienne (20,000,000 gallons), the Charente (19,000,000 gallons), the Côte-d'Or (16,500,000 gallons), the Lot-et-Garonne (15,000,000 gallons), the Saône-et-Loire (14,500,000 gallons), and the Tarn-et-Garonne (9,000,000 gallons). The department which made the least wine was the Creuse (1,800), and there were ten which have no Vines at all, these latter being the departments in which the most cider is made. The total cider crop for the past year was 100,500,000 gallons, this being little more than a third of the average yield for the past ten years, the Apple crop having been a failure in nearly every part of France. Normandy and Brittany are the principal cider-making districts, the departments which stand at the head of the list being the Isle-et-Vilaine (23,000,000 gallons), the Mayenne (18,000,000 gallons), the Seine-Inférieure (13,500,000 gallons), the Calvados (10,500,000 gallons), the Morbihan (9,000,000 gallons), and the Manche (8,500,000 gallons).

#### HIPPEASTRUM PARDINUM.

THIS fine bulbous plant was introduced by Messrs. Veitch from Peru through their collector Mr. Pearce, and it received a first-class certificate in 1867 from the Royal Horticultural Society. It is very distinct, differing from most Amaryllises in the flower having a very short tube, and in the petals spreading out flat. They are cream-coloured, with small and crimson-red spots. The flowers are about 6 inches in diameter, the scape being 12 inches in height and bearing two flowers. It is evergreen. Bulbs in 6-inch pots are now flowering, having in most instances two scapes each, and bulbs in 5-inch pots have also been flowering since December. Plants in 7-inch pots have larger bulbs and throw stronger scapes, but there is little gained by much pot room for this class of plants. I have had it flower from September to April.

It does well in a cool stove, having a position near the glass with a plentiful supply of water during growth, and liquid manure occasionally, the soil being also kept moist even when the plant is at rest. Potting is best attended to between flowering and starting into growth, removing all the offsets, which if potted and grown-on will make flowering plants in two or three years. Turfy yellow loam is the most suitable compost, adding a little leaf soil and a sprinkling of sand. Good drainage is essential.—G. ABBEY.



Mr. T. LAXTON writes as follows relative to the EARLIEST OF ALL PEAS:—"In reply to the inquiry at p. 118 of the Journal, I may state that this Pea is not yet in commerce, but will be thoroughly tested again this year by competent authorities, and if it bears out the opinion I have formed of it, it will probably be distributed next season. It is dwarfier and more constant than Harbinger, and has proved itself at Girtford to be really what its name implies—the earliest of all Peas. It was raised by crossing Ringleader with the pollen of Little Gem, Harbinger being the produce of a cross between Ringleader (or Dillstonc's) and Alpha."

— THE following ROSE SHOW FIXTURES are announced—Royal Horticultural Society, June 28th; Farningham Rose Society, June 29th; Canterbury Rose Society, June 30th; National Rose Society, July 2nd; Reigate Rose Society, July 5th; National Rose Society, Sheffield, July 14th; Wirral Rose Society, July 16th; Sutton Coldfield, July 22nd.

— THE handsome specimen of a most distinct and stately Palm from the South Sea Islands, PRITCHARDIA GRANDIS, in the Anerley Nursery of the General Horticultural Company, produced its flowers last week for the first time in this country, and we are informed that a drawing has been taken for the "Botanical Magazine." The specimen is said to be the only one in England,

and it is certainly the finest, as it is one of the two plants originally possessed by Mr. W. Bull, the other having died. It was exhibited by that nurseryman at the June Show of the Royal Horticultural Society in 1873, when a first-class certificate was awarded for it, and a description appeared in the "Gardeners' Year Book" for the following year. The leaves are nearly orbicular, very regularly jagged or cut at the margin, and they are about a yard in diameter, on petioles of moderate length. The habit of the Palm is particularly noble, and smaller specimens would be very useful for the stove, as the regular fringed edge of the leaves imparts a most distinct appearance to the plant.

— IN a recent number of the "Pharmaceutical Journal" Dr. John Harley relates the particulars of experiments undertaken to prove that FOOLS' PARSLEY (*ÆTHUSA CYNAPIUM*) IS NOT POISONOUS. It appears as the result of these that this plant, which is commonly reputed to be very poisonous, so far from having an injurious effect upon human beings, may even be beneficially employed as a pot herb; at least Dr. Harley recommends it being used for that purpose, though he observes, "the *Æthusa Cynapium* of Sussex, Kent, Surrey, Essex, and Hertfordshire is not absolutely free from the noxious properties attributed to it."

— AN instance of the EXTENSIVE PLANTING OF TREES is recorded on the Pelham Pillar in Lincolnshire, relative to which we cite the following description from *Notes and Queries* of the 5th inst.—"The following is a copy of the inscription on Pelham's Pillar, situate in the parish of Cabourn near Caistor, Lincolnshire, said to be the highest part of the Earl of Yarborough's estate on the Lincolnshire wolds. The pillar is built of granite, and is about 150 feet in height. There is a room at the top, lighted by four large windows, from which may be seen the German Ocean and extensive views of the surrounding country, north, south, east, and west. The entrance door, which is towards the east, is flanked on either side by huge figures of a lion and lioness. The woods and plantations around add much to the sylvan beauty of the place.

"This Pillar was erected to commemorate the Planting of the Woods by Charles Anderson Pelham, Lord Yarborough, who commenced Planting in 1787, and between that year and 1823 planted on his Property 12,552,700 Trees. The foundation of this Pillar was laid in the year 1840 by his Son, and the building finished by his Grandson in 1849."

The number of trees thus planted yearly during the above period was 348,686.

— AT the recent annual meeting of the READING HORTICULTURAL SOCIETY, Mr. Benyon, the President, in the chair, it was stated that the Society had well maintained the objects for which it was started in 1854—viz., the advancement of horticulture in the town and neighbourhood, and of affording pleasure to a large portion of the public, as evidenced by the two exhibitions held during the year, the unusually large number of visitors and the great success of the shows, which were acknowledged to be the best ever held in Reading, although the prizes offered for competition have not been so large as the Committee could have wished. Only a small favourable balance was announced, owing to expenses incurred in repairing the erections in the abbey grounds. It was proposed that the President, Treasurer, and Committee, with the addition of Messrs. G. W. Palmer, Arthur Hill, E. Jesse, and J. Sydenham, do continue their services during the ensuing year, and that Mr. Geo. W. Webb and Mr. R. D. Catchpool be requested to continue to act as Secretaries, which was duly seconded and carried. It was also announced that classes for Rhododendrons and Pansies would be added to the schedule this year.

— WE clip the following from the *Wiltshire County Mirror* ON CULTIVATING RAILWAY SLOPES—"The South-Western Com-



pany are setting a good example in offering to let the waste land on the slopes of their line for cultivation, and it is hoped that other railway companies will do the same. By this means thousands of acres now unornamental and unprofitable will be turned to good account. In some places they might be made available for garden fruits, and under any circumstances might be utilised for the production of Potatoes and other garden or agricultural produce. It is already done on a very small scale in the neighbourhood of various stations; and there can be little doubt that small farmers, gardeners, and minor railway officials would only be too glad of the opportunity of cultivating these waste lands on favourable terms and to the benefit of all."

— WE have received the schedule of prizes offered by the MASSACHUSETTS HORTICULTURAL SOCIETY for the year 1881, from which we learn that the following amounts will be appropriated as prizes in the department named. For plants and flowers 1500 dols., fruit 950 dols., vegetables 500 dols., gardens and greenhouses 100 dols., or a total of 3050 dols. Seventeen prizes varying in value from 30 to 60 dols. will also be offered for new and meritorious seedling plants, fruits and vegetables. Seven exhibitions will be held during the year—namely, Azaleas and Roses, March the 17th; Pelargoniums, May the 7th; Rhododendrons, June the 4th; Roses and Strawberries, June the 23rd. Autumn Shows, September the 13th to 16th, and October the 1st; Chrysanthemums and Fruit, November the 9th.

— MR. H. C. STEWART, Treasurer to the North Street, Marylebone, Flower Show Committee, sends us a copy of his "HANDY BOOK ON WINDOW GARDENING" (Barrett & Son), a pamphlet of thirty-one pages, containing plain and fairly accurate directions for the management of such plants as cottagers usually grow. It is in three parts, the first being devoted to a consideration of the different soils employed in potting; the second deals with the chief operations—such as propagation, supply of water, and potting; and the third contains brief descriptions of plants suitable for windows.

— THE Annual General Meeting of the FARNINGHAM ROSE AND HORTICULTURAL SOCIETY was held at the Lion Hotel, Farningham, on February 7th, when the report for 1880, showing a balance of £36 4s. 5d., was unanimously adopted, and the officers for the present year elected. The date of the next Exhibition is fixed for June 29th.

— MR. W. ROBERTS writing respecting DAPHNE INDICA IN CORNWALL observes—"The climate of this county seems especially adapted for these lovely winter-flowering plants, so well do they flower and thrive. In the gardens of Sir John St. Aubyn, Bart., M.P., at Trevethoe, Lelant, near Hayle, I recently saw a very good specimen of *Daphne indica rubra* flowering out of doors, and the gardener, Mr. Courtice, informs me that he has gathered flowers from it during the present winter."

— MR. DANIEL HILL, Honorary Secretary of the HARROW HORTICULTURAL SOCIETY, informs us that at a recent meeting of the Committee of this Society the Summer Exhibition was fixed for Tuesday, July 5th, and the Autumn Exhibition for Tuesday, September 20th.

— *Nature* states that the Hamburg firm of C. Woermann has sent Mr. Hermann Soyaux to the French colony of Gaboon in order to try to cultivate the LIBERIAN COFFEE TREE at that place. Soyaux has now been at Gaboon for two years, and has there established the Scibonge farm, which is situated about a day's march inland from the Gaboon River, on the Awandu River, which flows in a north-easterly direction into the Bay of Corisco. He now employs some one hundred negroes. Many thousand Coffee trees have been imported from Liberia, and have been

planted, and experiments have also been made with sowing the beans, so that at the beginning of 1882 the first Coffee harvest is confidently expected. The Hamburg firm supports the undertaking in a most efficient manner by sending engines, implements, &c., and experiments are also pending to introduce and acclimatise horses and mules. Mr. Soyaux makes meteorological observations for the Leipsic Observatory, and natural history collections for the Hamburg Museum.

— A CORRESPONDENT states that in a hurried visit to the gardens at ASHBURNE HOUSE, SUNDERLAND, he noticed that *Chamaedorea graminifolia* was in bloom. The Orchids were exceedingly healthy. The fine conservatory was very bright with bloom; and fine plants of Azaleas Countess Eugène de Kerchove, Madame Van Houtte (splendid), and the mollis section were flowering. The above Mr. Cramont, the able gardener in charge, strongly recommends for forcing. *Rhododendron præcox* was also fine, and seems an excellent plant for midwinter flowering. *Erica melanthera* in 8-inch pots had growths over 18 inches long. But the best feature of all were a grand display of Cyclamens in 5-inch pots, seedlings of 1880, with over fifty flowers each. They had received most simple culture—grown in a Cucumber pit near to the glass, well shaded during summer, fully exposed during autumn to the sun's rays, and then placed in a comparatively cool pit.

— A BEAUTIFUL example of DENDROBIUM HILLI is now flowering in the Orchid House at Kew. It has three racemes 12 to 15 inches in length, and crowded with the delicate creamy yellow flowers. The plant was sent to Kew by Mr. Walter Hill of the Morton Bay Botanic Gardens.

— POTATO CULTURE.—A list of Potatoes representing about six hundred sorts in all, but melted down to about half that number by a process of severe selection, forms a dry but perhaps useful feature of the current number of the "Gardener's Magazine." It suggests the question, Who can want so many? It seems, however, that "Potato fanciers" make an amusement of growing all the sorts they can get hold of. Of these painstaking souls Mr. Shirley Hibberd is a guiding star, and the list he has presented in his paper reflects his light in every possible shade of colour. It is surely time we had some good Potatoes.

### THE HOLLYHOCK.

WHEREVER hardy flowers are grown florists' flowers ought to occupy a foremost place. In truth, as hardy flowers become better known there will be a great number of species discarded which are of no real value to the gardener; so that, as with stove and greenhouse plants, merely the finest will as a rule be grown, and foremost in these selections will always be those plants known as florists' flowers. The decorative value of these plants is also noteworthy. To the amateur florist, who, perhaps, grows only two or three species, that is not of much importance, but to the gardener who has to be a utilitarian it is quite the opposite. There is a point of importance as to the time when these notes are published, which will be always kept in view, and that is to study the time when the culture of a particular plant may be described to the greatest advantage of the readers. It will not be practicable to publish the notes on every flower just at the best time, but as nearly as possible that will be adhered to. For the above reason the Hollyhock has been chosen as the subject, as at this time it can be propagated perhaps as efficiently as at any other season, where there is at least a small stock.

At the commencement I must confess the Hollyhock has failed with me. I will explain why I had succeeded well enough with it, having a few hundreds of flowering plants and a large stock of summer-struck plants from eyes, when one September day I became aware of the unpleasant fact that the *Puccinia malvacearum* had attacked the whole of our stock, and in a very short time every plant was dead. I have not succeeded in forming a stock since. A short note appeared last summer in the Journal stating how I was trying to destroy this fungus, but I failed in obtaining a cutting or an eye without the disease, and had to cut the plants down twice to save them from destruction. The last time the

plants were cut was sufficiently early to enable them to make some growth before being lifted and potted for the winter. The young growths from these will be grafted on roots. Though these plants were purchased as being free from disease, one or two of them were slightly affected; still I had hoped to clean them before planting by removing infected leaves and parts of leaves. But the most peculiar fact in connection with these plants and the fungus was this: I cut every plant down beneath the surface of the soil and drew a little soil over the rootstock of each, and yet, no sooner were the plants in full growth again, than the fungus appeared as strongly as ever. Hollyhocks were grown in several districts last year free from disease, even where the Puccinia was in abundance on the common Mallow. I am having plants from three different localities where the Hollyhock succeeded last year, and hope I may be able to have these fine autumn flowers again in abundance.

At this season the only certain mode of propagation is by grafting the young growths on small pieces of root. I have tried them as cuttings, but it is a slow and uncertain method, and at this date it should not be attempted, as, even if the cuttings root, they would be very late. Root-grafting is a simple and sure method of producing plants. After cutting the growths off the Hollyhocks select as many pieces of roots as may be required, if with active fibres so much the better; then cut the base of the scion quite level across, cut its stem half through  $1\frac{1}{2}$  inch from the base, and cut this vertical section out; cut the piece of root in the same manner to fit closely, and tie with a strand of matting. The roots are better for having been washed, as pieces of soil on the cut surfaces cause trouble which is otherwise easily obviated. Though I recommend  $1\frac{1}{2}$  inch as a good length to cut for splicing, I have often made successful grafts with very small pieces of growths. These require a pin to be run through the rootstock and scion in addition to the matting. The best kind of matting is that from mats in use for protecting frames, as it decays quickly. The grafts must be potted rather deeply. If the pots are plunged in a mild bottom heat and precaution taken that the top heat is very moderate—not over  $50^{\circ}$ —a very speedy junction will be effected. After removing the plants from this frame place them where they can grow slowly, and see that they receive a shift into 6 or 7-inch pots directly the first pot is well filled with roots. Let the compost be a rich one of loam and dung. Do not be in too great a hurry to have the plants into their flowering quarters. By the middle of April all danger of check will be past in most seasons, though it may be equally safe to plant a fortnight earlier.

I do not know any plant which roots so deeply as the Hollyhock: deep cultivation is therefore necessary. In soil already rich I allow 6 inches in depth of manure over the surface of the ground. In addition a spadeful and a half of a compost of equal parts loam and dung, with a little soot and bones added, is placed on the spot each plant is to occupy. Under these conditions Hollyhocks grow uninterruptedly with us until the Puccinia stops them. No other disease troubles them here. Staking is of course a necessity; but I do not insert the permanent stakes at the time of planting, as most writers recommend. There is no necessity for placing a long pole at least 6 feet out of the ground into its position two months or more before it is required.

The summer cultivation is simple enough. In ordinary seasons the roots will find abundant nourishment without watering. In dry seasons watering will be a necessity; but the roots travel straight downwards, and water should therefore be given close to the plant without watering the ground in the spaces between. If you require spikes or flowers for exhibition the tops of the spikes must be pinched off in the first case to the height the flowers are expected to open, which is not very easy to determine; and in the second instance, to give the flowers which are retained the full benefit of the powers of the plant to perfect them, the blooms on the spikes must be thinned out as well, to give every bloom space to develop freely. The plants should be at least 4 feet from each other if in the beds, more if it can be spared; but the plants look better and do equally well in borders amongst other plants. As the blooms fade cut the stems down to within a few inches of the ground. If wanted for stock lift and pot the plants in November, and keep them in a cool house where they can grow slowly, and have growths large enough to propagate by root-grafting in the early part of February.

Cuttings are produced during summer from the base of the plant; these strike freely in cold frames, and even out of doors in a shaded position. The flowerstems may be cut into pieces like the eyes of the Grape Vine and inserted in frames, where they root and grow freely. When propagated from seed the autumn is the best time to sow; if sown in cold frames flowering plants are obtained the following year. I may say that the Hollyhock does perfectly well year after year on the same piece

of ground provided the soil is well manured and cultivated.—  
R. P. BROTHERSTON.

#### MR. JOHN SPENCER.

IN our issue of the 13th ult. we announced the death of this estimable man. To the brief notice of his life given on page 31 we have received what our friend "WILTSHIRE RECTOR" terms "a few additional words by a neighbour of the late John Spencer of Bowood." With this true "word picture" we give the accompanying portrait of Mr. Spencer, also true and life-like, and which we are sure will be acceptable to our readers. In our remarks on page 31 we stated that Mr. Spencer died on the 10th of January, 1881, but omitted to say he was born on the 27th of June, 1809.

PERMIT me, as a near neighbour of the late Mr. Spencer, to say a few words from a Wiltshire, and, may I add, a near personal view. In the Journal of January the 13th there was an extremely good account of our late friend, of which the writer speaks too modestly "as a hurriedly prepared sketch." All I can say is, that such a sketch has all the realisation of a complete picture, yet I would venture to place gently and lovingly my wreath also on the coffin of our friend.

Though neighbours, living within three miles of each other, we had never met until some fifteen years since. Mr. Spencer, a regular reader of this periodical, had noticed some articles by "WILTSHIRE RECTOR," and desiring to make the acquaintance of their writer, made inquiries at head quarters, and, as he told me, he found to his very great surprise that "W. R." was a clergyman in his, the extreme northern part of Wilts. I, too, had heard of Mr. Spencer as a man of science, a successful lecturer, a gardener of renown, the bringer-out of the Bowood Muscat Grape, and a man not only of literary power, but a great and successful man of business—a possessor of that order of trained intellect which is of the greatest value when its owner is placed in a position of high trust. That position Mr. Spencer had as steward to the great and remarkable Lord Lansdowne, and to his son and grandson; and he won more than the respect—the love of his noble employers. Mr. Spencer I met in the old office in Fleet Street, and afterwards again and again in Wiltshire. This Journal brought us together, and the day of our introduction I mark in memory "with a white stone."

John Spencer began life as a gardener, and to the last he had a gardener's heart. He delighted, so it seemed to me, to go back in talk and in thought to horticulture; he loved to admire again the beauty of a flower; and as we tasted fruit together had all a gardener's relish for a garden's production.

It was of course a grand day in his life when the great Marquis gave to him the key of the steward's office. I happen to know that Mr. Spencer undertook the duties of the stewardship with hesitation and fear: but on Lord Lansdowne's side there was no hesitation and no fear. He, an admirable judge of character, knew the man of his choice, and had full confidence in his powers. Twenty years of successful stewardship showed how well and truly Lord Lansdowne estimated the man and his powers.

Every steward of a nobleman has, of course, an exalted position, rays of his master's glory fall as it were upon him—he is "the great man's great man." This always follows, but I claim for John Spencer a position higher than this. When he was, say, at an agricultural dinner he was pointed out as "Spencer of Bowood," not merely as "the Steward at Bowood." He had made in men's minds an independent position apart from the office he held. His hand was grasped warmly by men of science, and rank, and station, not only in London, but even in this somewhat exclusive western county. Next to Paxton and "Capability" Brown he had been the gardener who had achieved the highest social position, and he had done it, not by favour nor by fortune, but by the force of his own brain, and character, and manners.

In person John Spencer was a fine, tall, broad-shouldered Englishman, brown-haired and ruddy, with a forehead high and wide and reaching well over the eyes. Having lost his forelock his fine forehead gained in intellectual look; eyes light-coloured and intelligent; nose fine and long; a mouth in which were both power and kindness, the latter I think predominating. I remember watching his face at a public dinner, he sitting at another table just within pleasant view, and I noticed how his face lighted up in conversation, and I recently saw an engraving of a likeness of him in a shop window which did him full justice. He was a man concerning whom a stranger would say, "Who's that?" and I am told by men of business that whenever he was among men of business his words always carried weight. In his own house he was a charming and chatty companion, a pleasant shower of

Bowood Park sights. He had a warm and gentle heart for the animal world, for his favourite dog, and for every bird that flew. Now he would show me some favourite seedling Pelargoniums, and as evening came on would pet his bantams on their perch. The powerful man with the kind mouth was as gentle to and as fond of his pets as a delicate woman.

Such was John Spencer—a successful man, an able man, and, best of all, a good man, who amid unbelieving men of science was, though a man of science, a devout Christian. A few years since—some two or three—he received his warning in the failure of his health, and had he then retired he might have been alive now and perhaps seen fourscore; but he held on too bravely and died

in harness, for, leaving his home in Wilts one cold day on business for London by the early train, the cold struck in and he never recovered. Would it had been otherwise. Nature gives an old man her warning. If it be obeyed he lives awhile; if it be disobeyed and he works on he soon dies, and hence relatives and friends have at too early a day to mourn the loss—the removal to the better world, of John Spencer of Bowood.—WILTSHIRE RECTOR.

P.S.—I append the following note from the *Derizes Gazette*—“Mr. Spencer came in 1836 to Bowood as head gardener. The gardens, vineries, and pleasure grounds are his monument. In 1861 he succeeded to the vacancy caused by the retirement of Mr

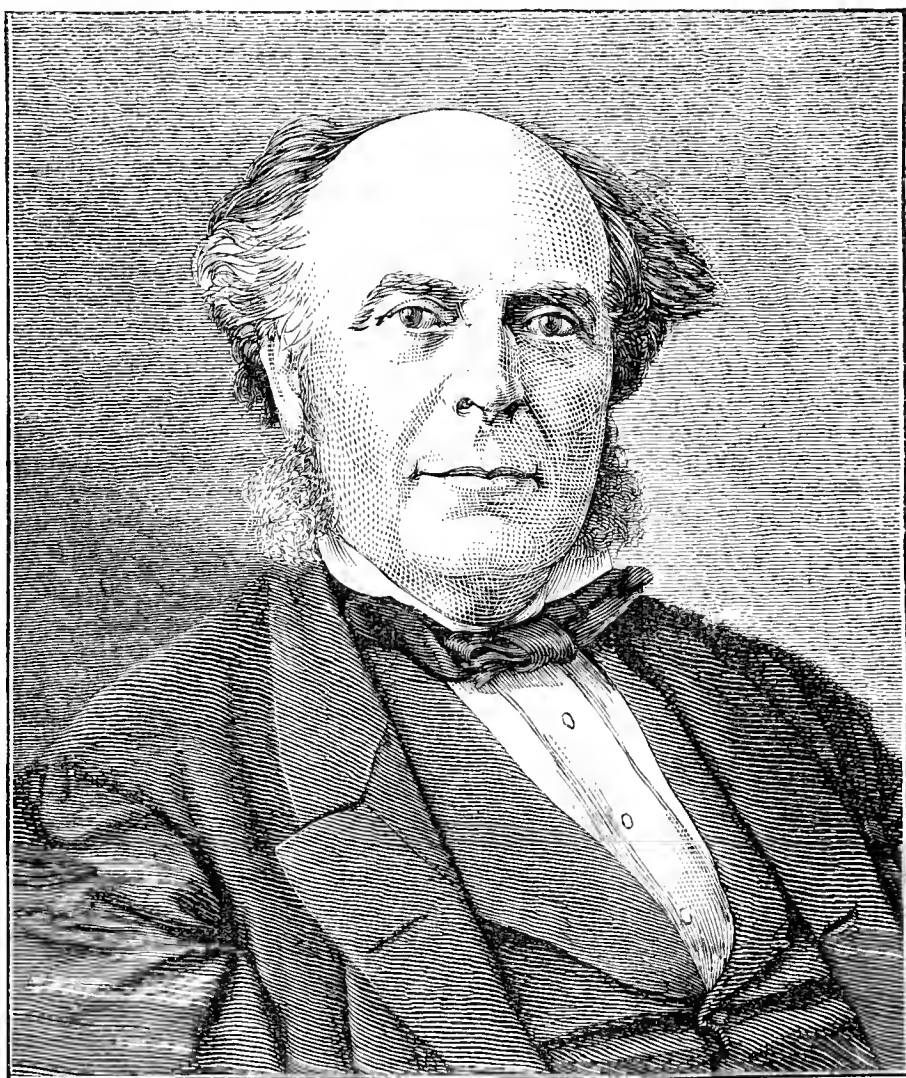


Fig. 28.—MR. JOHN SPENCER.

Phelps, and from his accession to the estate management dates the steady course of improvement which has of late years distinguished the Bowood estate. “I began there,” Mr. Spencer used to say, pointing to three small houses near the old Quemerford turnpike. He would have desired to live a few years longer to see the last bad farmhouse and the last rickety cottage. But this was not to be. This active and energetic man is now no more; but if in one sense his works do follow him, in another they remain to stimulate by their example and remind the living of the dead.”—W. R.

We have only to add that Mr Spencer was buried on Saturday the 25th ult., at Derry Hill, Wilts. He was followed to the grave by the following members of his family:—Mrs. Spencer, his

widow; Mr. Spencer Castle, his nephew; Mrs. F. H. Phillips, his niece; Mr. F. H. Phillips, the Rev. J. M. Hall, and Mrs. David Spencer. The Marquis of Lansdowne, Lord Edmond Fitzmaurice, M.P., the Mayor of Calne, and upwards of one hundred of his oldest friends and principal tenants of the Lansdowne estate personally attended. The service at the church was conducted by the Rev. W. H. Hitchcock, Rector of Derry Hill, and the Rev. Canon Duncan, Vicar of Calne.

AURICULAS AFTER THE LATE SEVERE WEATHER.—These commenced a vigorous growth the moment the late frost ceased. I am now referring to those on stands out of doors, on which



I was anxious to observe the effect of such extreme cold. The pots were frozen hard for at least a fortnight, and except a few specimens of green-edged—which I find much more tender as a class than any other—they now show no indication of having suffered. In a few pots that had been excessively watered before the frost, the expansion thereby caused swelled the soil above the rim, but after the thaw a gentle pressure put plant and soil back again without apparent injury. Plants indoors suffered slightly by having the leaf moisture withdrawn by the frost, which has the same effect as a hot sun or dry March wind on Auriculas. A cautious watering neutralised this. The flowering will, I anticipate, be ten days later this year.—W. J. M., *Clonmel*.



#### KITCHEN GARDEN.

OUTDOOR operations have been impeded by the weather, which at the time of writing is still unfavourable for preparing ground for Onion, Parsnip, and Carrot seed; but no unnecessary delay should be permitted, as the soil of gardens under proper cultivation is so friable as to admit of being worked very soon after the weather has become suitable. Onions, and indeed all root crops, succeed well after Celery, or on ground that has been well manured and deeply stirred. To prevent grubs attacking the plants a dressing of lime, soot, and salt in equal parts may be applied and pointed in at the rate of a peck per rod before sowing the seed, as the mixture is also a good fertiliser. Drills for Onions should be 12 inches asunder, those for Parsnips 15 to 18 inches, and the Early Horn section of Carrots about the same distance as the Onions. The ground for Onions should be rendered firm, treading it well before the drills are made and after the seed is covered. For Parsnips and Carrots the ground should only be moderately firm. Leek seed may be sown in rows 12 to 15 inches distance apart. In the north of England sowing the above may be advantageously deferred for another three weeks. Shallots and Garlic should be planted as soon as possible. If a sowing of Brussels Sprouts, Cauliflower, early varieties of Cabbage, Cabbage and Cos Lettuces have not been made in heat, sow at once on a warm border at the foot of a south wall, coating the seeds with red lead to prevent mice and birds taking the seeds, placing a few inches of fine soil as a bed for the seed, and cover them with similar soil. Lettuce wintered in seed beds, also autumn-sown Onions, can be transplanted into rich soil, filling up blanks in the permanent beds, firming the soil about the roots of those upheaved by frost, and hoe between the rows of these and similar crops. Make successional sowings of Peas and Broad Beans in the open quarters. These dipped in paraffin before sowing will be proof against the attacks of rats and mice.

*Forcing Department.*—Continue sowing French or Kidney Beans as fast as space permits; the most forward will require earthing up, and must be kept as near the glass as possible. Potatoes in pits or frames may be earthed up, warming the soil before using it. Where Seakale is forced on the ground a batch of crowns should be covered with pots or boxes, and surrounded and covered with about 3 feet thickness of fermenting materials. Turn over and supply new materials to fermenting beds where Asparagus roots have become exhausted, and introduce fresh roots. Pits with moveable lights are most suitable, so as to admit air freely above 50°, the temperature of the beds being from 70° to 80°. Large supplies of Mint are required in some places, which can only be maintained by the introduction of fresh roots at suitable intervals. Sow in pots or pans seed of Tomatoes, Capsicums, Basil, and Sweet Marjoram. The very early Celery will now be large enough to be pricked off in small pots singly, employing rich soil, and placing them in a warm pit as near to the glass as possible. Tomatoes, if strong enough, should be repotted as fast as is consistent with their growth. Cauliflowers and Lettuces in frames will require air on all favourable occasions.

#### FRUIT HOUSES.

*Peaches and Nectarines.*—In the house closed in November, and for

which fire heat was commenced early in December, attention must be given the trees in tying and regulating the shoots as they advance. Shoots retained on a level with or above the fruit should, unless required for extension, be stopped at the third leaf, and subsequent breaks to one joint. Remove growths not necessary for furnishing next year's bearing wood or for trees extending. Every shoot should have space for its full exposure to light and air. The fruit is swelling fast, therefore attend carefully to the borders, giving copious waterings when needed, and for weakly trees tepid liquid manure. Syringe the trees morning and afternoon, so that the foliage may be dry before night. Thin the fruits where too thickly placed, removing those at the back or under side of the trellis, retaining about one-third more than will be required for the crop. The temperature should now range from 60° to 65° at night and 70° to 75° in the day with sun heat. In the next succession house started at the beginning of January attention will be required in disbudding the trees, retaining one bud at the short base of the current year's bearing shoot, and another on a level with or above the fruit. Extensions and shoots upon them may be left 15 to 18 inches apart, which is sufficiently close for the bearing wood.

*Vines.*—Those in the house started early in December are in flower, and should be afforded a night temperature of 65°; a few degrees more when mild, and a few degrees less when the weather is severe. Artificial impregnation must be attended to, especially with Muscats and other shy-setting varieties. Commence thinning when the berries are set, and do not allow more lateral extension than can have due light and air. Afford liquid manure to the inside borders in a tepid state, and mulch with half-decayed manure. Damp available surfaces frequently. Very early Vines thinned and approaching the stoning period will require careful attention, ventilating early in the day, but allowing an advance to 80° or 85°, and close early. Afford liquid manure copiously, especially to Vines in pots, allowing a moderate extension of the laterals, particularly above the fruit. Vines started early in the year will need attention in tying down the shoots and disbudding, also stopping when the shoots have advanced so as to cover the available space with foliage that can have full exposure to light and air. The temperature should be advanced to 60° at night, 5° less on cold nights or mornings, 65° by day, advancing to 75° from sun heat, closing early, allowing a rise to 80°, with plenty of moisture in the house. Vines for affording ripe fruit in July and August should now be started. It will not be necessary to protect the outside border, but the inside should be well soaked with water or liquid manure at 85° to 90°. Damp the rods and other available surfaces two or three times a day, but allow them to become dry at least once every twenty-four hours. Maintain 50° to 55° by artificial means, and 65° with sun heat. If there is any danger of the rods breaking irregularly secure them in a horizontal position. In late houses the Grapes will ere this have been cut and bottled, but if not it must be attended to at once, pruning the Vines, dressing the cuts with styptic or patent knotting, cleansing the house, removing the inert surface soil, and applying fresh turfy loam, with about a twentieth part half-inch bones, and a similar quantity of charred refuse. Keep them as cool as possible, so as to afford a complete if only a short season of rest. Old Vines are often much improved by a dressing of lime, which may be given now at the rate of half a bushel per rod, pointing-in as deeply as the roots permit.

*Figs.*—Trees planted out and started early in the year will require attention in regulating the growth. The system usually followed is to obtain the first crop from the terminal shoots and spurs, which necessitates the removal annually at the winter pruning of nearly the whole of the shoots that have reached the limit of the trellis, also the spurs that have been stopped. This has a tendency to induce strong growth, which must be so regulated as to spread over the whole surface of the trellis, each shoot having the full benefit of the light. Keep the night temperature at 55° to 60°, and 65° by day from fire heat, commencing to ventilate a little at that temperature, allowing an advance with increased ventilation to 80°, closing the house with sun heat at 75°. Syringe the trees twice every day, and otherwise maintain a genial condition of the atmosphere. The

shoots issuing from the base of the fresh terminal growths should be stopped at the fourth or fifth leaf. The earliest-forced trees in pots must be regularly attended to with water, as neglect may cause the loss of the crop. Trees in pots started later should have the same treatment as advised for the early ones.

*Orchard House.*—The pruning of all trees that were not so treated in autumn or early winter should be attended to, cutting away any weakly growths, especially of the Peach and Nectarine, leaving the best situated and most promising growths at such distance that they will have free exposure to light and air. If the spurs are crowded it is advisable to thin them moderately, shortening any irregularity of growth to preserve the symmetry of the trees. The house should be thoroughly cleaned, and the trees when pruned be dressed with an insecticide and placed in position for the summer. Apricots and Pears should have a light position, and where there is thorough ventilation, especially when the trees are in bloom, as without this a crop of either Apricots or Pears under glass is uncertain. The Apricot when in flower should be kept dry, and there is then little danger of the blossom being injured by cold winds. Cherries should also have a light and airy position. Trees in pots when placed in their summer position should be perfectly level, and if it is desired to confine the roots to the pots each may be raised on three bricks. Borders containing trees will be found somewhat firm and dry, and if the surface be very close point it over to the depth of an inch or two with a fork before giving a thorough supply of water. Trees in pots require good supplies of water, repeated as necessary to render the soil thoroughly moist. Ventilate in accordance with the state of the weather, and when frost is not expected the ventilators may be kept open night and day.

*Melons.*—Bottom heat is essential to the successful cultivation of early Melons. Hot-water pipes are unquestionably the best, as they afford a regular and lasting heat, but very good results may be had from fermenting materials. Equal parts of stable litter and Oak or Beech leaves form a mild and durable bottom heat. They should be thrown into a heap about a fortnight before it is wished to make the bed; in a few days it will be seen whether there is sufficient moisture to insure fermentation, and if not turn it over and moisten as required. About two turnings will be necessary before making up the bed. A bed about 5 feet in height at the back and 4 feet in front will be requisite at this early season. In houses with hot-water pipes to afford bottom heat the pipes should be covered with brickbats and to about 6 inches over the pipes, and over these a layer of turves grass side downwards, and then rather heavy turfy loam with an admixture of old cowdung, about a sixth, placing in ridges or mounds a foot in depth and that width at the top, ramming it well down. Similar mounds will be required in pits or frames, and for these a bottom heat of 80° to 90° at the commencement, and for hot-water beds 80°, is suitable. Keep the young plants near the glass to insure short-jointed growth, stopping those for pits and frames at the second rough leaf, whilst those intended for trellises should not be stopped, but have the growth secured to a stick. In planting out place a little dry soot around each as a guard against slugs. A moist atmosphere will be necessary, and a temperature of 70° to 75° by day, falling about 5° at night. With sun heat allow an advance to 80° or 85°, and ventilate with great care. Sow for succession, and pot off seedlings.

*Cucumbers.*—Many of the directions concerning Melons are equally applicable to Cucumbers as regards bottom heat, but the soil need not be so heavy as for Melons. Preparations must be made for planting out young plants soon in heated pits, and seed may be sown for raising plants to be put out in frames as they become cleared of Potatoes. The weather has been harsh lately and necessitated sharp firing to maintain the proper temperature, which should not now be allowed to fall below 65° at night, 70° to 75° by day, and 80° to 85° with sun heat. Ventilation will require careful attention, closing early, damping the paths and the plants lightly at the same time. Encourage root-action by dressing the surface of the beds with fresh warm loam in a lumpy state, watering about twice a week, alternating with weak tepid liquid manure. Remove all bad leaves and exhausted growths, keep up a succession of young

fruitful growths, and stop one or two joints beyond the fruit according to the space. Afford weakly plants more extension of growth, and remove all flowers and fruit from them until in better condition. Avoid overcrowding and overcropping.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

*Hotbeds.*—Prepare for making these for Cucumbers, Carrots, Potatoes, and propagating bedding and other plants. Where a single-light frame is available a hotbed should first be made, and it will then be of service for raising Cucumber plants, and also for seeds and cuttings of plants required early. Cucumber and Melon plants started in heated houses are apt to become infested with insects, which will cling to them when transferred to frames. A single-light frame prevents this, and also renders it unnecessary to make a large bed before it is wanted. Much depends upon the proper preparation of the heating material. Horse stable manure is most generally available, and this requires to be well shaken into a heap to ferment, turning it before the centre is dry, and allowing the heap to remain for another week or ten days, at which time much objectionable rankness will have passed off. If by any chance the manure should become dry it must be freely watered as it is turned. Oak, Chestnut, or Beech leaves mixed in equal quantities with the manure as the bed is being formed will moderate the heat.

Much of the manure is at first often little better than clean straw, and it is advisable to throw out the driest portion, as if used it gives off a rapid, rank, and fleeting heat. This litter may be utilised for covering the frames during the nights, and the hotbeds as the heat declines, or it may be wheeled into the cow yard and will there in a short time be converted into some of the best of heating material. Cowyard manure, although slow in effect, eventually gives a strong heat, much sweeter than that obtained from horse manure. Hotbeds at this time of year should be made about 4 feet high at the back and 3 feet high at the front. It is not advisable to tread the manure, but it should be made moderately firm with the fork.

#### QUANTITIES OF SEEDS REQUIRED FOR A SMALL GARDEN.

Doubtless the majority of the readers of this column purchase one of the advertised collections of seed, and certainly go the cheapest way to work. It does not follow that the cheapest is always the best way, and those who know how should select for themselves, cheap and good as the collections undoubtedly are. For instance, they often include very tall-growing Peas, which are valueless in innumerable cases where even short stakes are with difficulty procured. Peas may be grown with or without stakes, the former method being preferable. Suitable varieties for small gardens are William I., Dickson's First and Best, and Improved Sangster's No. 1 for the earliest crops; to succeed these—Alpha, Nelson's Vanguard, and Laxton's Supreme; these to be followed by Dr. McLean, G. F. Wilson, and James' Prolific; and for the latest sowings, Veitch's Perfection, Hairs' Dwarf Mammoth (also good for the second early crops), and Premier. The preference is given to the first name in each case, and about six pints in all may be procured. Good tall-growing Peas are Culverwell's Telegraph, Fortyfold, and Ne Plus Ultra.

Runner Beans may also be grown without stakes, and one pint of the old Scarlet will be sufficient; and of Kidney Beans half a pint each of Osborn's Forcing and Canadian Wonder, and one pint each of Early Longpod and Green Windsor Broad Beans. For the earliest supply of Beet a small packet of the Turnip-rooted may be ordered, 1 oz. of Dell's Crimson sufficing for the main crop. Carrots—1 oz. each of Early Horn and James' Intermediate, or 2 ozs. of Nantes Horn alone. Broccoli—one quarter ounce each of Purple Sprouting, Walcheren, Knight's Protecting, and Cattell's Eclipse; and small packets of Snow's Winter White, Osborn's Winter White, and Leamington. Cauliflowers—one quarter ounce Dwarf Erfurt Mammoth, and small packets of Eclipse and Veitch's Autumn Giant. White Celery—Cole's Crystal White. Red Celery—Leicester Red, a small packet of each. Cucumbers—a small packet each of Rollisson's Telegraph for frames, and Stockwood Ridge for outside. Melons—Victory of Bath, green-flesh, and Read's Hybrid, scarlet-flesh, are still two of the best for amateurs to grow. Cabbages—Quarter-ounce packets of East

Ham, Cocoa-nut and Rosette Colewort; Dwarf Green Curled Kale, Little Pixie, Early Ulm, and Drumhead Savoy, with selected Brussels Sprouts; and the same quantity of All the Year Round Cabbage Lettuce, Paris White Cos, and Black-seeded Bath Cos Lettuces, and green curled and broad-leaved Batavian Endives will suffice. Onions—1 oz. each of White Spanish, James' Keeping, and mixed Tripoli, the latter for autumn sowing. Parsley, half an ounce. Parsnips—1 oz. of the Student. Radishes—1 oz. each of Wood's Frame and mixed Turnip. Spinach—Half a pint each of Round or Summer, and Prickly or Winter. Turnips—1 oz. each of Snowball and American Red Stone, and if wanted very early a packet of Early Purple-top Munich. Tomatoes—a small packet of either Earley's Defiance or Hathaway's Excelsior, and Vick's Criterion or Conqueror for pots. Vegetable Marrow—small packet of the Long White. Of early Potatoes, which are most profitable, two pecks of either Mona's Pride or Rivers' Ashleaf, and one peck each of Snowflake and Schoolmaster. Mushroom spawn half a bushel, or more if several beds are to be formed.

#### SELECTION OF FLOWER SEEDS.

Of plants that may be raised from seed and grown in pots for the decoration of greenhouses and conservatories the following may be ordered:—Balsams, Tuberous-rooted Begonias, Browallia elata, Cineraria, Primula sinensis, Cyclamen persicum, Calceolaria, Gloxinias, Schizanthuses, Petunias, Pyramidal Mignonette, Cobæa scandens, Lophospermum scandens, Torenia Fournierii, Cockscombs, Coleus, Abutilons, Solanum capsicastrum, and Capsicum Princess of Wales. Of fine-foliage, subtropical, and bedding plants, the following are easily grown from seed:—Acacia lophantha, Amaranthus Henderii, Solanum marginatum, S. Warscewiczii, and S. robustum, Eucalytus globulus, Chamæpeuce diacantha, Cineraria maritima, Amaranthus melancholicus ruber, Cannas, Zea japonica, Ricinus Gibsonii, R. communis major, R. sanguineus, Perilla nankinensis, and Nicotiana grandiflora. For the flower garden the following are suitable:—Antirrhinums, Ageratums, Asters (the Victoria are very good), Calliopsis, Clarkias, Candytuft, Convolvulus major and minor, Delphinium formosum, Dianthus, Eschscholtzia crocea flore pleno, E. mandarin, Godetias, including Lady Albemarle, Hibiscuses, Lupins, Larkspurs, Linums, French and African Marigolds, Mignonette, dwarf Tropæolums, Pyrethrum Golden Feather, Poppies, Portulaccas, Tropeolums, Sweet Peas, Scabious, Stocks, Wallflowers, Sweet Williams, and Virginian Stocks. To all of the foregoing allusion will be made when the proper time arrives for sowing.

## THE BEE-KEEPER.

### EXAMINING STOCKS.

WHERE bees have been wintered in hives without division boards, so that they have had a large space to keep warm, it must be that the low temperature of the past month has very much reduced their stores. The small quantity of food bees consume if properly wintered is so remarkable that those who have kept themselves abreast of the times need have no fear but for others. It is highly important that if the temperature does not admit of a thorough examination, so that the condition of things may be certainly ascertained, barleysugar should be given at once under the quilt or between the combs of skeps, unless, indeed, the bee-keeper has evidence that such help is not needful. The question of wintering we seem now to have fairly mastered, and my results are so extremely good after the testing of the late frost, that I hope to give a full account of them in a week or two.—F. CHESHIRE.

### WOODEN v. STRAW HIVES.

NOW there is so much discussion about wooden and straw hives I wish to say a few words. I began bee-keeping with straw hives; the bees succeeded well, and I soon learned to do anything I wished with them without fear. I visited the bees very often, fed them, and kept them warm. On receiving the Journal every Thursday the bee department had my first attention; I obtained much pleasure and profit from its pages, especially

from Mr. Pettigrew's contributions. I read about wooden hives and their furniture, but I had never seen one. At length a kind bee-keeper invited me to see his apiary. There I saw the bar-frame hives, and the way they were employed was fully explained to me. The apiary comprised Stewartons, east Stewartons, and Woodburys, with Neighbour's and Pettigrew's straw skeps. The wooden hive pleased me so much that I obtained one, a Woodbury, well made with double walls; it was filled with foundation combs, and received a splendid lot of bees, which thrived well on the Limes and filled the bars in thirteen days. The season was then over with us. My next care was to make it strong for winter, so I drove the bees from two skeps and united them to it. As it was my intention to do away with the skep I made preparations in good time. Spring soon arrived, the wooden hive was placed on a clean board and the bees were fed until May. I invited a friend to see my bees; we opened the bar-frame which was good, but a skep by its side, 14 inches wide and 8 inches deep, was crammed full of bees ready to swarm the first week in May, while my Woodbury would be three weeks or a month later. The bees in it were less in numbers, ate much more food, did not gather so much honey, and the hive was very wet inside, while the straw hive was very dry. Both had young queens; the Woodbury queen was the finest I ever saw, but the straw skep was the best, and I advise cottagers to keep to it.

I desire to give a few remarks upon foundation combs. It is the greatest advantage the wooden hive has over the straw skep. My experience tells me it is unnecessary; give a skep as much sugar syrup to start it as you would foundation comb, let the expense be equal, and judge by the results. I confess I had straight combs in the bar-frame, which cannot always be obtained in the skep; but as to the manipulation, I would as soon have one as the other. I use the foundation in the sectional supers to have the comb straight and give a start. I run them in with a teaspoon; with a little practice it is better than the smelter, quite as clean, cheaper, and quicker. I never set large pieces in the supers as Mr. Pettigrew did. I was sorry to see such a weak point in his otherwise excellent practice. If he runs them in properly he will find it a great advantage. I have come to the conclusion that I shall use Pettigrew's straw hive and work sectional supers on the top. Cottagers that have not seen his book have yet the best practical book on bees to read. I have a friend who this year has from 40 to 50 lbs. of super honey in his Pettigrew hives besides one good swarm from them far superior to any of his wooden hives, which did not swarm all the season. This is the first time I have written about bees, but it may not be the last if the Editor thinks this letter worth a place in the Journal.—A LOVER OF BEES.

### CRUDE AND PERFECT HONEY.

IN the review of the "Handy Book of Bees" the soundness of the author's views or opinions on crude honey is questioned. Nay, the reviewer ventures to call them "a fad," and suggests their omission in a future edition, and wisely says that opinions will never be admitted as facts till they have been demonstrated to be so by irrefragable evidence. Well, what evidence would the reviewer like? What would he consider irrefragable? If my evidence and that of many other bee-keepers is worth anything, what the reviewer calls "prejudice" and "opinion" is something better and more satisfactory—viz., facts that cannot be gainsaid, as they have been "proven" again and again, and may be proven in five minutes in any apiary while bees are gathering honey. In this matter I have made no discovery. That bees collect crude honey from flowers and convert it into perfect honey in their hives was well known before I was born. Before I was many years old I became acquainted with this fact, just as I became acquainted with the fact that working bees are less in size than drones. Since that time I have seen, tasted, and handled both crude and perfect honey a thousand times. The difference in taste and appearance of crude and perfect honey is so different and distinct that I am astonished the reviewer has not seen the difference. Evidently my statement goes for nothing with him. Ocular demonstration, and probably nothing else, will convince him that perfect honey is manufactured by bees from the sweet syrup of flowers gathered by them. Very well. Let me suggest that at the close of a day of honey-gathering a bar of brood comb be removed from the centre of a hive and examined. The empty cells amongst the brood cells will be found half full of glittering honey. This is crude honey, and may be easily shaken into a plate or dish and tasted. Another comb may be taken out and examined and be found like the first with many cells half full of crude honey, but let the second comb be returned with the honey unextracted. If the combs be examined on the morning following it will be found that the crude honey has been removed from the centre of the hive to the extreme outside or ends of the combs. If your reviewer were to see these things he would surely ask himself this question—Why do the bees put the honey amongst the brood at first? And why not carry it to the store combs at once? If the



syrup or sweet juice of flowers remain as it is gathered, we may well ask these questions, and come to the conclusion that bees have yet to learn the economy of labour.

Let us take another consideration. If the gentleman who reviewed the "Handy Book of Bees" has had experience in supping, and has been observant in this work, he must have seen that the honey and combs in supers increase as fast at night when bees are at home as they do in the day when they are gathering honey in the fields. This being an unquestionable fact, it may be asked where the honey stored at night comes from. Intelligent reasoning, supported by the evidence of three senses—viz., seeing, tasting, and handling, supply the answer.

I have taken as much as 15 lbs. of crude honey from a hive and jarred it up, and thus kept it for a considerable space of time. It never became honey in the jars. It was ultimately given to a hive on which was a super partly filled. The bees of this hive took it rapidly and converted it into honey proper. The reader will naturally ask why so much crude honey was allowed to accumulate in this hive. The explanation is easy. The hive was a strong one, without brood at the time, and therefore had plenty of empty cells and field hands. A glut of honey came, and so much of it was gathered by the bees during sunshine that they were unable to convert it all into real honey at nights (and this is not an uncommon occurrence during times of great gatherings of honey). The bees were driven from this hive on the evening of the fourth day of the honey glut. If they had been permitted to remain in their hive for some time longer, or if bad weather had kept them from outdoor work for a day or two, the 15 lbs. of flower syrup would have been reswallowed and disgorged and thus made into honey proper. If your reviewer would feed two hungry bees with good honey, and catch other two returning from the fields loaded with crude honey, and dissect the four bees if his tenderness of heart would allow him to do so, and examine their contents, he would be converted on the spot to the views I have enunciated. Though I have no interest in the sale of the book which has been named and revised, and which belongs wholly to the publishers, I cordially thank the reviewer for his friendly and favourable notice of it.—A. PETTIGREW.

#### TRADE CATALOGUES RECEIVED.

H. Cannell & Sons, Swanley, Kent.—*Illustrated Floral Guide for 1881.*

James Yates, Stockport.—*Catalogue of Flower and Vegetable Seeds for 1881.*

W. W. Johnson & Son, 5, Bridge Street, Boston, Lincolnshire.—*Catalogue of Vegetable and Flower Seeds.*

Wm. Hugh Gower, Tooting, London.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*



**Pruning Hollies** (*J. J., Cork*).—You may slightly prune the shrubs now, doing the work with a sharp knife, severing the growths close to the leaves remaining on each shoot that is shortened. September is also a good time for pruning the shrubs.

**Cutting Down Roses** (*Idem*).—If you have only "2 or 3 inches" of stem destitute of foliage they will not be unsightly during the summer, and to plant more than 2 or 3 inches deeper than at present would probably injure the Roses considerably. Cannot you cut some of them down? Fresh growths will be produced freely from the old wood if the plants are healthy, but may not flower so freely the first season. In cutting down, however, you must be careful not to prune below the "worked" part, or you may have a cluster of Manetti growths.

**Hyacinths Defective** (*James Carter & Co.*).—We have carefully examined the plants, and never dissected firmer, sounder, and more healthy bulbs. We consider the defects of the plants wholly due to some error in culture. Were the bulbs potted early enough? Have the plants been supplied with over-strong stimulants? Have they been placed in a warm house before the pots were filled with roots? We have probably indicated the cause of the failure, and think the plants have been overfed and overforced.

**Grafting Oranges** (*W. M., Doncaster*).—The following extract from Mr. F. W. Burbidge's work on the propagation of plants so well expresses what you require that we need add nothing to it:—"Like all other cultivated fruits Oranges are extremely variable in earliness, size, colour, and flavour, this being partly owing to their being propagated from seed, and partly owing to the sudden development of sports or bud-variation. Good varieties are readily propagated by grafting on the Lemon stock or on seedlings of the common kinds. Seedling Lemons are found to be more vigorous, to grow faster, and to make better stocks than Oranges. Seeds taken from imported fruit grow freely if sown in moist earth and placed in a greenhouse or vinery, and these may be splice, whip, or side grafted in a close case in heat at almost any time, preference being given to the early months of the year when vegetation is most active."

**Planting Seakale** (*J. Sands*).—The roots may be planted in rich deeply trenched ground immediately the weather and soil are favourable for the work being cleanly performed. The rows may be 18 inches apart, and the sets a foot

asunder in the rows. The terminal crowns should be removed, and growths will issue from dormant buds at the base. If the crowns are left they will only produce flowers, which exhaust the plants and retard the growth of the basal buds that must be depended upon for producing crowns to afford produce next year. The tops of the sets should be just beneath the surface of the soil.

**Early Prolific and Early Crimson Pine Strawberries** (*J. E., Aberystwith*).—They are not synonymous, as the annexed woodcuts and descriptions clearly show. *Early Prolific*.—Fruit large, and large medium. The woodcut depicts a fair medium size. In some soils it is decidedly larger. Colour bright glossy vermilion, becoming a little darker when very ripe; seeds slightly embedded; flesh white, firm, and juicy, with a delicious refreshing flavour peculiar to this variety alone. It is decidedly early. *Early Crimson Pine*.—Fruit handsome bright crimson colour; seeds rather prominent; flesh dullish white and sometimes pink, very juicy, with a rich piquant Pine flavour. The fruit is much like British Queen, observes similar shapes as it ripens, and has an equally rich Pine flavour, but colours up better all over the fruit. It has the advantage also of coming in some three weeks before that excellent variety. Figures and descriptions of other varieties of Dr. Roden's Strawberries will be found in our issues of September the 9th and 16th, 1875.

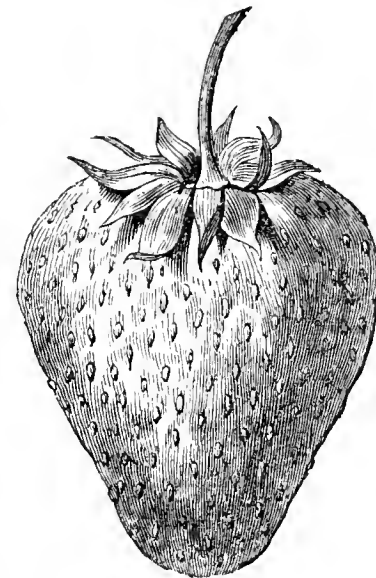


Fig. 29.—Early Prolific.

**Removing Asparagus** (*Rus in Urbe*).—We doubt if it would be profitable to remove the Asparagus as you propose, as plants ten years of age can seldom be transplanted well, and never if they are removed before growth commences, when the work needs to be done with extreme care, as if the growths an inch or so long are broken in transit or the roots dried by exposure success cannot be expected. Two-year-old plants are the best for removal and transplanting. Much labour is involved in taking up old plants to preserve their roots intact, and then even when great care is taken in transplanting—such as preserving the roots moist, and spreading them out their full length in the new position, working light soil amongst them, covering 4 inches deep, and watering them as needed—a great number often fail to grow, and the remainder do not become quickly established.

**Cauliflowers for Succession** (*Dorking*).—You may maintain a supply by sowing at intervals as recommended on page 118 last week, Early Dwarf Mammoth and Walcheren, with two additional sowings of Veitch's Autumn

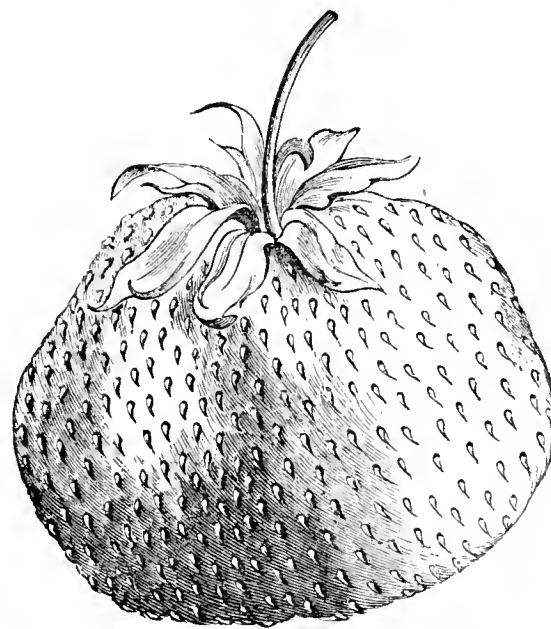


Fig. 30.—Early Crimson Pine.

Giant in March and April. These, with good soil, culture, and shelter as needed, will produce heads from the end of May till January, and from January to May you may have Broccoli, the seed being sown from March till June.

**Cabbage Plants Clubbing** (*An Amateur*).—The clubbing to which you refer is known as ambury, a disease peculiar to the Cabbageworts, and is most common in light sandy soil. Cabbage plants are frequently infected with ambury in the seed bed, which infection appears in the form of a gall or wart on the stem near the roots. This wart contains a small white maggot, the larva of a little insect called the weevil. If on the gall and its tenant being removed the plant is again placed in the earth where it is to remain, unless it is again attacked the wound usually heals and the growth is little retarded; on the other hand, if the gall is left undisturbed, the maggot continues to feed upon the alburnum or young woody part of the stem until the period arrives for its passing into the other insect form, previously to which it gnaws its way out through the exterior bark. The disease is now almost beyond the power of remedies. Your soil would be much benefited by a heavy dressing of lime and salt; the former at the rate of eighty bushels per acre, the latter at the rate of 5 or 6 cwt., the whole being dug in as soon as weather permits and well mixed with the soil. The ambury may usually be avoided by frequent transplantings, for this enables the workman to remove the excrescences upon their first appearance, and renders the plants altogether more robust and ligneous, the plant in

its tender sappy stage of growth being most open to the insect's attacks. As a further precaution, the plants before being placed in the ground should be dipped up to the leaves in a puddle formed of half soot and half garden soil, which adheres to the stems and roots and renders them distasteful to the insects.

**Peach Tree Buds Dropping** (W. F. Reigate).—The system of forcing you appear to have adopted is a very satisfactory one, and should not be the cause of the buds falling from your tree. There are many minute causes which will result in Peach trees throwing off a number of their buds, which can scarcely be determined without a thorough knowledge of the treatment of the trees after they shed their foliage, and the condition of the roots and growth. Dryness at the roots during the resting period will cause the buds to fall soon after starting, and many failures result from this cause alone. Again, if the trees have been suddenly changed from the treatment they would receive while resting to that of closing the house to maintain a given temperature with insufficient air, that is sufficient to cause the buds to fall from some varieties, while others would not be affected by such a sudden change. The Royal George is much better adapted for early forcing than the Noblesse, and is not so likely to cast off its buds if kept a little too close as would be the case with the latter variety. In forcing the Noblesse in an early house more air should play about the tree from first starting, or the buds are almost sure to fall as soon as there is the slightest move perceptible. It is not really suitable for a very early house, and does much better in a cooler position. When forced early it must be very carefully and gradually brought forward with abundance of air night and day if success is to be looked for. If the wood has been crowded in the trees, or left too thickly so that sun and air could not penetrate to thoroughly ripen it, the buds are always liable to fall when the trees have been started early. The flow pipe being pressed into the bark of your tree is certainly prejudicial to its well-being, and may be the cause of the buds falling. If the tree has been planted the number of years you say, and has never been lifted or disturbed, the roots may have penetrated into bad soil, or if the border has become sour in any way the buds are almost sure to fall. It would be well to carefully lift the tree after its growth is made, and some time before the foliage falls, bringing the roots nearer the surface, and adding some fresh soil about them. It should be kept well syringed and shaded for a time after lifting to keep the foliage fresh until fresh roots are formed. It would not be wise under the circumstances to lift it now. Heavy cropping for a number of years is a sure cause of failure and proves in the long run a gigantic evil, and judging from the number of fruits you say has been taken from the tree is sufficient alone to cause the failure. What appears to be light cropping for a few years in the end often proves too heavy, and exhausts the energies of the trees until they force upon cultivators a season of rest—"free from the strain of fruit-bearing"—so as to recruit themselves.

**Vines for Planting** (A Reader, Apr).—Shorten the canes at once as you propose, and dress the wounds with styptic or painter's knotting to prevent bleeding. Keep them in a cool house so that they may start into growth gradually, and when the growths have fairly started, say half an inch long, turn the Vines out of the pots, removing all the soil from the roots, lay them out quite straight in the border, cover them 4 inches deep with soil, give them water at a temperature of 100°, and then mulch the surface of the border with manure. The soil in which they are planted should be fresh turfy loam, and if a fourth of wood ashes or charred refuse can be mixed with it, it will be an advantage. The stems of the Vines should not be buried much if any deeper than they are now in the pots.

**Names of Plants** (S. B.).—1, *Phaius grandifolius*; 2, *Seneio macroglossa*; 3, *Fittonia Pearcei*. (Inquirer).—The specimen with rose-coloured flowers is *Centropogon Lucyanus*; the other appears to be a garden variety of *Helleborus atrorubens*. (Amateur).—1, *Pteris eretica albo-lineata*; 2, insufficient, but probably *Pteris arguta*; 3, apparently a small specimen of *Phlebodium aureum*.

**Stewarton Hive Management** (J. K.).—You would increase breeding space by putting your second box (body box) under the full one, at the same time closing its door and allowing the bees to enter through the lower box only. The slides will all be withdrawn from the lower box, but short stops—i.e., small pieces of slide, will be inserted to prevent the escape of bees. Whenever it may be necessary to separate the boxes or remove supers a thin wire must first be passed between them to cut all comb attachments. Bees build comb to the bottom of sections when they can pass freely under them, but not in any other case, and this is a rule of universal application, therefore the body boxes would be united as you suspect. A book by the Rev. E. Bartrum on the management of the Stewarton is now in the press and will be shortly issued by Longman and Co.—F. C.

#### COVENT GARDEN MARKET.—FEBRUARY 16.

OUR market remains the same as last week.

##### FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6	Melons .....	each	0	0 to 0	0
Apricots.....	box	0	0	0	Nectarines.....	dozen	0	0	0
Cherries.....	½ lb.	0	0	0	Oranges .....	½ 100	0	0	0
Chestnuts.....	bushel	12	0	16	Peaches .....	dozen	0	0	0
Figs.....	dozen	0	0	0	Pears, kitchen ..	dozen	2	0	3
Filberts.....	½ lb.	0	0	0	dessert .....	dozen	2	0	4
Cobs.....	½ lb.	2	0	0	Pine Apples ....	½ lb.	1	0	2
Gooseberries ..	½ sieve	0	0	0	Plums .....	½ sieve	0	0	0
Grapes .....	½ lb.	3	0	8	Walnuts .....	bushel	0	0	0
Lemons.....	½ case	12	0	18	ditto .....	½ 100	0	0	0

##### VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms .....	punnet	1	0 to 1	6
Asparagus .....	bundle	0	0	0	Mustard & Cress ..	punnet	0	2	0
Beans, Kidney ....	½ 100	1	0	1	Onions .....	bushel	3	6	5
Beet, Red.....	dozen	1	0	2	pickling .....	quart	0	0	0
Broccoli .....	bundle	0	9	1	Parsley..... doz.	bunches	6	0	0
Brussels Sprouts..	½ sieve	0	9	1	Parsnips .....	dozen	1	0	2
Cabbage .....	dozen	0	6	1	Peas .....	quart	0	0	0
Carrots.....	bunch	0	4	0	Potatoes .....	bushel	3	9	4
Capsicums.....	½ 100	1	6	2	Kidney.....	bushel	4	0	4
Cauliflowers .....	dozen	0	0	3	Radishes..... doz.	bunches	1	6	2
Celery .....	bundle	1	6	2	Rhubarb.....	bundle	0	4	0
Coleworts..... doz.	bunches	2	0	4	Salsify.....	bundle	1	0	0
Cucumbers.....	each	0	6	0	Scorzonera .....	bundle	1	6	0
Endive .....	dozen	1	0	2	Seakale .....	basket	3	0	3
Fennel .....	bunch	0	3	0	Shallots .....	½ lb.	0	2	0
Garlic .....	½ lb.	0	6	0	Spinach .....	bushel	3	0	0
Herbs .....	bunch	0	2	0	Turnips .....	bunch	0	4	0
Leeks.....	bunch	0	3	0	Vegetable Marrows	each	0	0	0



#### POULTRY AND PIGEON CHRONICLE.

#### THE COMPARATIVE ADVANTAGES OF FATTENING BULLOCKS AND SHEEP.

It has always appeared to us that farmers in general have held ideas upon this matter which were vague, and frequently not founded on calculation, so as to enable them to form a just estimate of the advantages of keeping sheep for fattening purposes in preference to bullocks, and *vice versa*. A friend once told us that since we had a discussion upon the subject he had seen many farmers, and had been surprised at the apparent difficulty most of them experienced in answering the question addressed to them in reference to it, and likewise at the wide range of the replies. The question was, "How many sheep do you consider equal in consuming powers to a bullock?" Some replied five, and other ten—a very wide difference to exist among practical men. We therefore undertake the task of giving the home farmer a series of calculations, which, although the subject is extremely intricate and complicated, we have based not only upon our own experience, but they are supported also by the able assistance of many practical agriculturists, and in consequence may be accepted as a close approximation to the truth. As evidences of the complicated and difficult task we have undertaken we propose only on the present occasion to draw comparisons between bullocks and fattening sheep during the winter months, and upon such food as usually forms the diet of these animals on the arable farms of different districts of the kingdom. The cost and feeding of bullocks and sheep of various ages and at different periods of the year would, indeed, be a large subject, and it is from that circumstance we desire to limit our observations and calculations on this occasion to the comparative advantages of fattening bullocks and sheep on arable farms only, chiefly because we intend on a future opportunity to take up the same subject, referring only to fattening on the grass and pasture farms. In order to carry out our intentions we shall confine our comparisons and calculations to the feeding of cattle and sheep in the winter months, because root-feeding at this period of the year is the basis of fattening for both these kinds of stock. We purpose limiting the period of fattening by taking the period of twenty weeks, say from the middle of October to the middle of March, so that the best time for winter feeding may be chosen for the purpose.

In commencing we introduce a few remarks upon ascertaining, if possible, the particular stock best adapted to arable farms in general, and which yield the most profit in consuming roots and other crops for the purpose of manuring the land. No doubt some farmers will consider that the keeping of stock seldom yields a profit in itself, and will view it chiefly as an agricultural operation, whereby we may dispose of certain vegetable products of the farm, which frequently cannot be sold in any other way than by the production of live stock, and also as a means whereby we may be enabled to manure our arable land. As the basis of our arguments relating to this interesting and important subject we will proceed to give a statement of our estimates of cost of feeding and the food consumed by both oxen and sheep in the manner which they are treated upon arable farms in general—namely, the oxen under cover and the sheep in the open field, and by taking it in this way it is no proposal of ours, or whether it is fair or unfair. It is sufficient for the practical statement which



we shall make that it is a custom of the management of stock on arable farms which has previously existed, and is still prevailing.

ESTIMATED COST OF FEEDING AN OX PER WEEK IN COVERED BOX, &c.

DR.	£	s.	d.
To 4 lbs. of oilcake per day, or 28 lbs. per week at £12 per ton .....	0	3	0
„ 60 lbs. of roots per day or 420 lbs. per week, at 9s. per ton .....	0	1	8
„ 20 lbs. straw fodder per day, 140 lbs. per week, at 30s. per ton .....	0	1	10
„ „ „ for litter, at 10s. per ton .....	0	0	8
„ Carriage of dung to field, spreading, &c. ....	0	0	3
„ Interest on extra capital .....	0	0	3
„ Attendance per week .....	0	0	8
„ Balance, profit .....	0	3	0

£0 11 4

CR.	£	s.	d.
By Value of manure per week .....	0	1	4
„ Increased value of bullock per week .....	0	10	0

£0 11 4

ESTIMATED COST OF FEEDING FOUR SHEEP PER WEEK IN OPEN FIELD.

DR.	£	s.	d.
To 4 lbs. of oilcake per day, 28 lbs. per week at £12 per ton .....	0	3	0
„ 60 lbs. of roots per day, or 420 lbs. per week, at 7s. 6d. per ton .....	0	1	4
„ 4 lbs. of hay per day, or 28 lbs. per week, at 4s. per cwt. ....	0	1	0
„ Attendance per week .....	0	0	3

£0 5 7

CR.	£	s.	d.
By Value of manure per week .....	0	1	4
„ Increased value of four sheep per week .....	0	4	0
„ Balance, loss .....	0	0	3

£0 5 7

We must now—in order that our debtor and creditor account, which involves somewhat intricate and complicated calculations, may be the better understood by the home farmer—give some practical explanations relating to the items in these estimates. Let us take first the selection of bullocks of either the Devon, Hereford, or Shorthorn breed at about three years old, and if purchased in October, when they are being sold off the grass land and pasture farms, of a condition just beneath the butcher's requirements, and to cost on the average of seasons £17 each when they enter the boxes, and selling out at £27 each. Taking secondly the sheep two-teeth wethers or tegs, of either Hampshire Downs, South Downs, or Cotswolds in good condition, to cost on the average of seasons 45s. each when they enter the field, and selling out at 65s. each. The foregoing account will require probably some explanations as to how the items are made out. Referring to the value of a ton of roots for consumption by bullocks we will suppose a field sown half with Mangolds and half with Swedes, the former producing 24 tons per acre, the latter 16 tons per acre; average crop 20 tons. The cost of this crop—including tillages, manure, rent, rates, tithes, &c.—we will estimate at £6 10s. per acre; thus the roots will cost 6s. 6d. per ton; pulling, storing, and preparing the Mangold, 25s. per acre; ditto the Swedes, 15s. per acre; average cost of preparing, &c., 20s. per acre, or 1s. per ton. But here we must observe that the comparison between the roots for bullock consumption and that for sheep must cease, and to proceed we will estimate the cost of carting the roots to the homestead, perhaps a quarter of mile distance, for on the outlying light or poor land the roots would be fed with sheep only. Carting home and storing Mangold at per acre, 35s.; carting home, &c., the Swedes, 25s. per acre; average cost of carting home and storing, 30s. per acre, or 1s. 6d. per ton. Charging the fodder, oat straw, at market value in the place at 30s. per ton is fair, because the straw may be sold off, the equivalent value being returned in purchased manures, which may raise the question as to the policy of selling or consuming by cattle. The litter straw we have only charged at 10s. per ton, because straw, which could not be sold, of an inferior description, will answer every purpose in the boxes. We estimate the carting and spreading dung returned to the land (a bullock making a ton of dung per month) at 3s. per head per week. We reckon interest on £8 for twenty weeks at ten per cent., being the amount of extra capital employed in the purchase of an ox over that of the four sheep, the former costing £17, the latter £9. The attendance is estimated at 8d. per bullock per week; one man to feed, litter, and attend to twenty-five bullocks. This item closes the bullock account on the debtor side.

On the credit side we have estimated the increased value at 10s. per week, for we have found in our business for a number of years that bullocks of various ages have on the average increased in value 10s. per week during the twenty weeks' feeding

on roots, &c., in the winter months. We have reckoned the value of the manure at 5s. 4d. per ton, and allowing each bullock to make a ton per month, this gives 1s. 4d. per week, and this we believe to be very near the truth; but whether it is, in fact, more or less, it does not affect our comparative calculations, because we have charged the same value of manure in the sheep account. As regards the sheep stock account, debtor side, the value of the root crop for consuming in the open field will be the same as for bullocks up to the point where they are pulled, prepared, and stored, which will give the value of 7s. 6d. per ton. We have charged the sheep with hay, because practically we cannot make fattening sheep eat straw without cutting it into chaff and mixing with superior food, which will lead into expense and waste. We have charged the hay at market price in the place, which is about the sum it costs to grow and secure it, and may therefore be considered a fair charge. On the credit side of the account we have reckoned the manure of the four sheep at the same as the ox, but it should be remembered that some of the manure is lost by exposure and heavy rains. We have calculated the sheep, whether two-teeth or tegs, to gain 1s. per week for twenty weeks' feeding, in accordance with the average result for a number of years on our own farm, as well as many others, and as a rule it will be found over the mark rather than under.

(To be continued.)

WORK ON THE HOME FARM.

*Horse Labour.*—This has been continued upon some hill farms and dry loamy vale land by fallow ploughing in those cases where uncompleted before the great snowstorm of January 18th, which by farmers will be remembered for a long time as the disastrous snowstorm of 1881. Ploughing and pressing should now be done of the Clover and Saintfoin leas for Oats, Peas, or Vetches. We, however, like drege best, for when Barley is mixed with the Oats the crop not only yields a better and heavier sample of grain but the plant is more likely to come with greater regularity, for upon lea ground the wireworms are frequently found to destroy some of the young plants; but we have noticed that they will very seldom eat off both Barley and Oat plants, as the Barley being of quicker growth often grows out of the way, whilst the Oats fall a prey to the wireworm to some extent. Upon the strong loams the first opportunity should be seized to sow the Beans, and either late Peas or winter Vetches may be mixed with them; for this plan not only diminishes the risk of blight, but after the second horse-hoeing the Peas or Vetches spread over the space between the rows of Beans, and keep down the growth of various weeds by shading the land.

*Hand Labour.*—Guano and any artificial manure which requires manipulating and preparing beforehand for use may now be broken down and passed through a quarter-inch wire riddle in readiness for use at the appointed time; this can be done in wet weather in the manure house under cover, so that neither men or women may lose time and pay during weather unfitted for outdoor labour. In preparing guano and such manure after being passed through the sieve it may be bagged up again, so as to be available when the period for its application arrives either for the Potato or Mangold crops, as well as for Lent corn or upon any land to be planted with Cabbages. Men may now be employed in preparing seed beds for the growth of such vegetables as Cabbages, Kohl Rabi, Broccoli, &c.; and if the plants are not grown under the care and superintendence of the gardener at the mansion it is best to prepare a bed or beds for the growth of seeds in some corner of a field or headland, in which the plants are to be set out. This will save time and labour at planting, and also allow of the plants being set as fast as they are pulled, and in some seasons this is very important. As soon as the land can be worked freely it should have a dressing of guano forked in, and the seed sown when the land is dry enough. The seed may, to facilitate the hoeing and pulling of the plants, be drilled with a hand garden drill at about 14 inches apart. Upon the fields or pieces of land where Cabbage plants were set in the autumn we fear that many plants have been destroyed by wood pigeons, larks, and rabbits if planted on the flat or level ground; for the late snow and frost will show the advantage of planting between the furrows of the land under stretch, for they will not only have felt the effect of frost less severely, but where covered with snow they will have been kept free from the attacks of enemies, as well as protected from the cutting winds which accompanied the snow.

The Wheat plant we find has been injured on the open districts where the land was left bare by the snow drifting before the wind. It is, however, too early to say whether damage of this kind will be fatal to the plant as a whole, for if one or two plants only are left in a square foot of ground, tillering upon good land may maintain a plant sufficient for the production of an average crop. We also understand that in some cases both Turnips and Swedes have been destroyed by the frost. Should this prove to be the case to any great extent it will be a very serious matter as regards the provision for stock in the spring, which shows that wherever the land and climate is adapted for the growth of Mangold that they should be grown to a much greater extent than heretofore; because after being securely stored they are the sheet anchor of stock farmers, and the



only safe provision for stock. The home farmer should call to mind how often we have advised the heaping and covering, commonly called pitting, of the Swede crop, not only to protect the roots against frost and rabbits, but also to prevent them from striking winter roots and throwing up early greens, which they will do during a mild winter, and very much injuring their quality or feeding value for stock. It has been our own system for many years to pit the whole of our roots, whether Swedes, Mangold, or Carrots, in the field when required by the sheep to be fed on the land, and this plan also facilitates the daily use of the roots, for whether frost or snow prevails one heap at a time is opened and passes with little trouble or waste through the Gardner's cutter. About four or six rods' produce—according to crop—furnishes roots enough for each conical round heap to be handy at making up and also at the opening for use, so that one or two heaps, according to the size of the flock, may be used daily enclosed by the fresh fold. As we have lately called the attention of the home farmer to the plans we advise for the feeding both ewes and lambs we need not repeat it here, but with such weather as has prevailed all the minutiae of the management we described will have been required to maintain the condition of the animals.

With respect to the stock in the yards and cattle courts the roots in store will have been handy and useful in furnishing both heifers or steers, as well as dairy cows in calf, with a generous supply during the late bad weather, and no doubt they will have passed through the winter thus far with satisfaction if a full supply of sweet straw or ordinary hay has been given. The fattening pigs which have received pulped Mangold or Carrots mixed with barleymeal, mixed in the proportion of one-third meal at first, gradually reducing until the last fortnight of feeding, when the roots may be omitted and meal only given to finish off the animals for the butcher. The breeding sows which are in farrow should have a small yard and hovel to run in, and be fed with roots in part, either Swedes or Carrots, and wash with a little meal in it twice a day; but we always like to contrive the sow's yard to be fenced with moveable iron hurdles and placed near the cart-horse stables, so that the long straw manure thrown out every day should furnish a bottom and bedding for the sows to eat their roots on, and in order also that the manure may not only be trodden down and preserved but further improved by the droppings of the pigs.

#### VARIETIES.

**THE BRIGHTON POULTRY SHOW.**—We regret to learn that the Committee of this excellently conducted Show are £130 out of pocket. The Secretary, Mr. T. K. Cucksey, Chichester, Sussex, appeals to successful exhibitors for subscriptions, and announces that, notwithstanding the monetary failure of the last Show, it is intended to hold another in October next. The Committee have kept all their promises to exhibitors in a most exemplary manner, and have, notwithstanding the loss, sent out the ornamental prize cards which they promised. We trust they will receive support from fanciers.

— **"PRACTICAL ARTIFICIAL INCUBATION,"** by Edward Brown (Cassell, Petter, Galpin & Co.).—We have received the second edition of this work, which we reviewed at length when it was first published. The new edition is based very much upon the lines of the former one, but Mr. Brown has added details of all the recent inventions and improvements both in incubators and rearing apparatus. It is the most complete work upon the subject yet published, and will well repay a careful perusal.

— **WOODSIDE, ABERDEEN, POULTRY SHOW.**—A correspondent obligingly sent us last week a report of this Show, but it arrived too late for insertion. It was the tenth annual Exhibition. Considering the very stormy weather that prevailed the display was a very creditable one. The entries, including poultry and Pigeons, amounted to about 400. Messrs. Campbell and Stewart judged the poultry.

— **THE COLORADO BEETLE.**—The Devonshire people have, we learn, been in a considerable state of excitement by reason of the arrival of this beetle. It appears that a Mr. Horton brought with him from Canada in December a number of these insects. Some witnesses say there were nearly thirty, and the introducer himself admits he had twenty. He says that he looked upon the beetles as a curiosity, and wished to show them to his friends. However that may be, most of them reached this country alive. Mr. Horton has been charged before the magistrates and fined £5, a penalty which has been indignantly condemned by the Devonians as altogether inadequate to the offence. Diligent search has been made for the insects, and it is believed they have all been destroyed. In 1874 a correspondent stated in our columns his opinion, "that if the pest were introduced into England it would be by some enthusiastic naturalist, who would get some

precious specimens over alive, and then expect a medal from the Entomological Society for his skill and perseverance." It will be seen now that a different "reward" awaits those who succeed in bringing over the dreaded beetle, and they richly deserve it.

— **FOOT-AND-MOUTH DISEASE.**—The order which prevents the holding of markets for store stock all over the country, or nearly so, and only permits sales of fat stock under severe restrictions, including slaughter within six days after exposure for sale, will cease to operate on March 1st next. It may be presumed that the extension of the provisions of the order for a longer period—say to the end of March—will be a matter of consideration with the Privy Council; and we may, without expressing our own opinion, suggest to stock-owners and others concerned that the views which the Privy Council may entertain may, in some degree at least, be influenced by the opinions of practical men. No time, therefore, should be lost in bringing these opinions under the notice of the Government. Chambers of agriculture and farmers' clubs might claim to speak with authority on the subject. On Monday evening in the House of Commons Mr. Marjoribanks asked the Vice-President of the Council whether, in view of the rapid spread of foot-and-mouth disease, he would consider the advisability of the total prohibition of the entry of all live stock from England and Scotland until May 1st next. Mr. Mundella said then, finding the disease was extending northwards and had reached Durham, an order has been passed which came into force on January 28th, by which any local authority in Scotland can prohibit the entry into their district of animals from any part of Great Britain. We received on Saturday last an official communication from the Town Clerk of Glasgow to the effect that the local authorities for that city have prohibited the entry of any animal from England or Wales between February 3rd and April 1st.—(*Agricultural Gazette*.)

— **AGRICULTURAL PROSPECTS.**—Prospects on clay lands have been drowned, both literally and figuratively, during the past week. In many districts, especially in the unlucky midlands, there was no prospect but water; the direction of the roadway and extent of the fields being marked out by trees and high hedgerows, whilst the course of the rivers was indicated by the bridges only. Where arable lands have been flooded again and again—in Nottinghamshire there have been seven distinct and extensive floods—it is impossible to form any idea of what farmers' reasonable prospects may be, but on clay lands generally it is useless to shut our eyes to the fact that prospects are very materially worse than they were a week ago. When the frost broke up the land was not in bad form for the time of year; but it is in very bad form now. It is impossible to say what may happen in the way of weather, but unless it should prove altogether favourable there is at present very little prospect of making good seed beds in March. Some of our correspondents speak of work being in arrears, and that has now become a very serious matter. Root crops outstanding at the time of the great storm and frost are now nearly worthless. As a matter of fact, the stock of roots in most cases now consists only of such as have been stacked. Where the young Wheats were exposed they now appear to have been hit very hard, but they will pull through, no doubt. Altogether, there has been, in our opinion, a very sharp fall in the prospects barometer during the past week.—(*Mark Lane Express*.)

### POULTRY AND PIGEONS

#### SPRING POULTRY NOTES.

EVERY season in the poultry yard has its especial cares, on the due observance of which success later on much depends. It may not be out of place to enumerate a few points to be thought of in the present month.

Young chickens should not be allowed to run out into frosted ground, least of all on to grass covered with hoar frost. Their feet become contracted, the twist in the toes grows with their growth, and often at the Crystal Palace or Birmingham we hear it said, "What a grand cockerel! he would have been first but for his twisted toes."

Ducks should now begin to lay regularly after the break-up of

the frost. It is a common thing to find several eggs one morning, and then no more for some days. This is almost a certain sign that they are dropped in the water. Ducks almost invariably lay early in the morning, so they should be shut into houses overnight and kept in till they are likely to have laid their eggs in the morning.

Turkeys also want watching as the laying season comes on. They wander about in search of a nest, often to immense distances, and far beyond their owner's domain. They may before they have laid be easily induced to take to a desirable nest, but when once one egg has been deposited in a place they are very pertinacious in returning to it, quite regardless of there never being a single egg left in it. We have in this way often had Turkey eggs stolen by people who had discovered the foolish hens' favourite laying place.—C.

### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 84.)

#### FORMING A STRAIN.

HAVING arrived at the practical conclusion that in-breeding, though it may be sometimes productive of evil results, is a necessity, we now come to the consideration of the best method of establishing a strain. Every true fancier has for his object the attaining of perfection in the particular breed or variety which is the subject of his choice. He sets before himself an ideal which he desires if possible to attain, and the more difficult it is to attain that ideal the more exciting and interesting is the pursuit of it. The beginner, therefore, should, before attempting to breed or exhibit any variety, have fixed and clearly settled in his mind the standard points of the variety. These are, for the most part, well settled, and can be ascertained by a perusal of the various works upon the subject, and by a careful study of the winning birds at some leading shows.

It may seem at first sight to the outsider that the breeding of poultry or Pigeons is a mere child's play, unworthy of serious attention, but a practical acquaintance with the subject soon teaches the fancier that the attainment of absolute perfection in any variety is almost an impossibility. There are as a general rule so many points, all of which require to be bred for, that it is an extremely difficult matter to unite them all in perfection in one individual. It is for this reason that even the most successful exhibition birds are open to hostile criticism, and the different degree of weight attached by different judges to failure in the various points of a breed is the most fertile source of those variations in judging which so frequently puzzle a beginner. We will suppose, then, that the reader has determined which breed or variety he means to keep, and has obtained a fair knowledge of its leading points. Having reached this point there are the proverbial three courses at least open to him, and which of the three he chooses must depend upon his individual taste and circumstances. The first, and in one way the most simple course, and that which is most likely at once to produce a profitable return, is to go to a breeder and exhibitor of high standing and select from his yards a breeding pen of birds of the same strain. This, however, can hardly be called forming a strain; it is rather taking up the results of another man's labours and forming a sub-strain for the merit of which as a strain he is entitled to all the credit. There are these further objections to this course, that if the exhibitor from whom the purchase is made be one of high standing he will probably expect a very large price for really good birds, and will also expect to be paid for, in effect, mating up a yard for the purchaser and enabling him at once to breed birds of established strain. Two birds which are suitable for mating with each other, and which a fancier would willingly sell for, say, £10 each, he would generally be unwilling to sell together for £20. In fact, we know several leading fanciers who will not sell mated-up yards at any price. There are, of course, some who will honestly do so, and there are others who will pretend to do so, and then sell birds which they well know are badly suited for breeding with each other. A further difficulty presents itself in the fact that a sub-strain started in this way must have been largely in-bred in the hands of the original breeder, and the purchaser can hardly ascertain with certainty the extent to which this in-breeding has been carried, or the actual mutual relationship of the birds purchased by him.

Purchasing sittings of eggs from a well-known yard is merely another form of the method of beginning already referred to. It of course is not open to the same objections as to cost, but it is open to the latter objection as to uncertainty how far the original stock may have been in-bred, &c., and to the further objection that it is by no means an invariable rule amongst vendors of eggs to sell from their best stock. Some of the most celebrated fanciers

altogether decline to sell eggs for hatching; and indeed when we consider that a sitting of eggs honestly sold for, say, a guinea, may produce three or four birds each worth £20, and that the purchaser may in this way at once obtain the strain of the seller, this refusal to sell eggs is not to be wondered at.

The second course open to the beginner is the one which is really the most advantageous if circumstances allow of it. It is to purchase, cost what they may, a cockerel and from one to four pullets as nearly perfect in points as can be procured. The birds should, as far as practicable, be entirely unrelated to each other, and the number of pullets purchased should be in proportion to the number of breeding yards which the fancier is prepared to maintain. Glaring faults of any kind must be carefully eschewed, as by the method of breeding which we are about to recommend they would certainly be reproduced in the progeny. This process will, in regard to many breeds, be a most expensive one, and it is open to the further disadvantage that the purchaser must not expect, at least in the first year, to obtain any adequate return for his expenditure. It is true that as a general rule it is better not to breed from a cockerel mated with pullets, but in starting a strain the short life of the birds renders such a course almost indispensable. A cockerel and one pullet is sufficient to begin with; but we should recommend, with a view to the permanent maintenance of the strain, that at least two pullets should be purchased. As the method of breeding is equally applicable whatever the original number may be, and as in the case of Pigeons only a pair can be bred from, we shall proceed upon the footing that the start is made with a cockerel and one pullet, or a pair of Pigeons.

The third course open to the beginner is to purchase birds of fair quality at moderate prices, and by judicious breeding and artificial selection to work up to the standard. This is the course which we were through circumstances compelled at first to adopt, and although it is rather a tedious process, it is still a very interesting one. It does not, however, produce at first any adequate return for the time and trouble bestowed. It is, in regard to the established breeds, a going over again of ground which has been already well trodden; and we should therefore recommend such of our readers as cannot afford to purchase really good birds of the established breeds, rather to take up the newer and less known breeds in which the points have not been so firmly established, and to do for them what the leading breeders of the established breeds have already done for their favourites.

(To be continued.)

### SUCCESSFUL POULTRY KEEPING.

MR. WALKER has kindly furnished us with the following return of the number of eggs laid each week by "L. D.'s" White Dorkings. It will be remembered that from a stock of two hens and ten pullets to start with, "L. D." had last year 1984 eggs, which we set down as 165 eggs per hen. It appears, however, from Mr. Walker's letter with the returns that some of the pullets hatched early in the year commenced laying in the months of November and December. The return per hen is therefore not quite so high as we put it; but even so "L. D." has just cause to be satisfied with the laying qualities of the birds.

Week ending.	No. of Eggs.	Week ending.	No. of Eggs.	Week ending.	No. of Eggs.
Jan. 3	1	May 7	46	Sept. 17	23
" 8	6	" 14	46	" 24	30
" 12	7	" 21	32	Oct. 1	31
" 17	6	" 28	22	" 8	30
" 23	18	June 4	57	" 15	16
" 30	19	" 11	62	" 22	16
Feb. 6	26	" 18	57	" 29	11
" 13	38	" 25	59	Nov. 5	19
" 20	50	July 2	52	" 12	21
" 27	50	" 9	56	" 19	23
March 6	54	" 16	65	" 26	27
" 13	58	" 23	50	Dec. 3	29
" 20	53	" 30	32	" 10	28
" 27	57	Aug. 6	40	" 17	36
April 3	58	" 13	43	" 24	63
" 10	50	" 20	58	" 31	55
" 17	40	" 27	45		
" 24	30	Sept. 3	28		
" 30	39	" 10	16		
Carried forward 660		Carried forward 1526		Total 1884	

### EGGS IN WINTER.

YOU ask for experiences on the production of eggs in winter. I have for the past eight years kept Dark Brahmas, but in 1879 I

thought I would try a cross, so in October of that year I purchased a dark Dorking cockerel which I mated with eight of my Brahma hens. During the month of April, 1880, I set five hens with thirteen eggs each. The result was that in May I had forty-five chickens. In August I selected fourteen pullets uniform in colour, &c., and sold off the remainder. The earliest of the fourteen pullets commenced laying on November 14th. In November they laid 43 eggs; in December 210; in January 129, and in the present month they have laid up to date, February 12th, 77, thus making a total for the three months of 459. The weather in January was anything but favourable for the production of eggs. We had continued frost from the 8th until the 28th; the thermometer registered 30° of frost on two nights. The roosting house is a small roughly built house with sheltered yard for run. The food I use is barleymeal or sharps given warm in morning, scraps and bones broken up small for their midday meal, with Indian corn for their third meal. They have skim milk to drink when it can be spared. Some of my neighbours have fifty or sixty fowls, all mongrels, and have had no eggs all the winter. How is it?—JNO. CAMPBELL.

### TOY PIGEONS—THE SWALLOW.

THIS pretty variety in its present distinct form has, we believe, been produced within the last thirty-five years. We do not find it mentioned in "The Dovecote and Aviary," published in 1851; but Mr. B. P. Brent in his little book, which was written about 1855, from his large knowledge of German lofts gave an accurate account of it. He says, "They are generally called Swallows, which name they derive from their plumage, especially the Blue ones, much resembling that of the Tern, a small species of Gull, which is also called the Sea Swallow." We cannot, however, help thinking that its name must be due not so much to its plumage as to its flight, which is most peculiar, and exactly like that of the Tern. The form of the Swallow is Trumpeter-like, and it undoubtedly has some Trumpeter blood; indeed, we have seen Pigeons in old pictures somewhat between the modern Swallow and the Trumpeter. The Swallow is, however, a much smaller and lighter bird. Like the Trumpeter it has a hood or shell of inverted feathers at the back of the head, and has feathered feet and shanks.

Its plumage is of white and some one colour clearly defined, like the Turbit, though the markings of white and colour respectively are very different. The coloured parts are the whole of the head within the hood, which must itself be white, the wings and the foot-feathering. It is to be remarked in Mr. Brent's words, "Respecting the wings, they must be wholly coloured; but the scapular feathers that overlay the shoulders are white, giving the coloured wings a narrow appearance, which is regarded as a point of much importance;" also that "the feet or slippers are coloured only from the heel or hock-joint downwards, the trousers or feathers hanging down the legs or thighs being white."

The head of the Swallow, and its beak, is rather long and like the Dovehouse Pigeon, the upper mandible dark, and the lower light.

The coloured parts of Swallows are of various colours—red, yellow, black, and blue—the latter colour sometimes with black bars on the wings, and sometimes with plain blue wings, in which case the flight feathers are of a darker shade of blue. One of the chief beauties of the breed is that its colours are found of great soundness and richness; we have often passed on at the great shows from the Turbit classes to the Swallows, and have wished that the former could be found of as glossy black or as sound yellow as the latter. Of course the markings must be very clear and defined; and here we fear, especially in the case of the coloured head and white hood, the hand of the improver is sometimes busy. The foot-feathering should be as long and thick as possible. "Fairy Swallows" are of Swallow form but with different combinations of colour—e.g., some have plain white heads, some white wings with coloured flights, some spots on the forehead, but they are scarcely worth notice.

It is many years since we first saw a collection of Swallows at the Peristerion meeting in Great Queen Street, and were charmed with them. They were exhibited by the late Mr. Matthew Wicking. His cages were crammed with them, all good and uniform, and the sight was a beautiful one. Probably there were no individual birds quite up in exhibition points to the present lovely specimens shown by Mr. Bulley or Mr. Tedd. Subsequently Mr. Wicking was kind enough to present us, though personally unknown to him, with a bird to mate with one we procured from Germany, and we bred Swallows for several years, though not for show. They are excellent breeders, make good nests, and tend their young carefully. They are hardy and active on the wing and

thoroughly suited to a country place, where their variety of plumage and elegant flight can be seen in the open air.—C.

### OUR LETTER BOX.

**Eggs and Poultry Musty (J. C.).**—We have never known Maize to cause mustiness in eggs or poultry, and imagine that it is in your case caused rather by something wrong in the place where they are kept. Eggs will get a musty flavour from being kept in musty straw or hay, or sometimes from being kept in a damp place. The same remark would apply to dead poultry.

**Egg Tester (J. G.).**—Egg-testers can be had from any of the incubator makers. Messrs. Christy of 155, Fenchurch Street, supply a simple and effective one. Mr. Alfred Perry of Cogenhoe Farm, Northampton, also sells a rather more expensive article. We never find it necessary to use an egg-tester, as by closing the first finger and thumb round the egg lengthways, and then holding the egg between the eye and a strong light, the fertility or non-fertility can be easily ascertained. By giving the egg a slight turn with the fingers of the other hand the movements of the germ which floats at the top can be seen at a very early stage.

**Fowls with Cold (Idem).**—Separate the birds which are affected from the rest, and put them in a dry and rather warm place. Put a few drops of sulphuric acid and a few drops of nitric acid in the drinking water, adding a little sugar to make it palatable. Feed on soft food mixed warm and seasoned with a little cayenne pepper. Wash the nostrils with McDougall's fluid carbolate diluted with water, but take care it does not reach the eyes. If the birds be not better in a few days write again. Do you pay proper attention to the housing and cleanliness of your birds? We shall be pleased to have the accounts you speak of.

**Shell-less Eggs (D. Jackson).**—The soft eggs dropped by your birds intimate that their egg-organs are over-excited. The food you give them is much too stimulating—Indian Corn, Barley, and ground Oats. Omit the first-named entirely, and give the Barley and Oats on alternate days, and mashed Potatoes instead of one feeding of corn daily. Give them a daily supply of Lettuce leaves, and have a heap of bricklayers' limy rubbish that they can visit whenever they please.

**Poultry Farming (Hortus).**—We cannot recommend you in your circumstances to invest your capital in poultry farming. There are no doubt people in various parts of the country who earn a living by the rearing of poultry and Ducks for the market, but to deal with them successfully some actual experience is absolutely indispensable to success. The return in eggs varies so much in different birds, and in the same birds under different circumstances, that, except with the very best management and with birds selected and bred expressly with a view to laying purposes, success is very difficult of attainment. You might combine, say, the growth of Grapes with the rearing of early chickens in the vinery for market with profit. We did know of a case in which such an undertaking showed every indication of success, but unfortunately the death of the proprietor put an end to the experiment. Should you determine upon making the attempt we should think that nearness to a town or city in which you could dispose of eggs as fresh eggs at good prices would be of greater importance to you than proximity to a seaport where grain would be cheap. Grain damaged by salt water is frequently injurious to fowls, and we have always found it more advantageous to use good sound grain in preference to damaged. The best pure-laying breeds are Spanish, Minorcas, Andalusians, Leghorns, and Hamburgs, but the Leghorns and Hamburgs lay as a rule rather small eggs. You will, we think, find a good deal of information which would be useful to you in our article on "Eggs in Winter" in last week's number.

**Parrot Eating Feathers (Passaget).**—We think it very probable that the sulphur remedy mentioned by Col. Taylor on page 122 would be beneficial and is worthy of trial; judiciously given the sulphur could not do the bird any injury.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Baromet- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Feb.										
Sun. 6	29.845	34.5	31.8	N.W.	40.0	40.0	32.7	79.8	29.2	—
Mon. 7	30.028	34.7	32.4	S.	38.3	37.2	26.7	38.6	23.3	0.386
Tues. 8	29.180	46.6	43.8	W.	37.9	49.6	33.3	78.7	31.7	0.015
Wed. 9	29.704	41.9	38.4	N.W.	39.3	47.4	41.3	71.4	36.6	0.423
Thurs. 10	29.041	49.2	48.8	W.	40.2	51.0	39.6	90.2	38.3	0.080
Friday 11	29.037	39.7	38.7	N.E.	40.7	44.4	37.5	78.2	33.4	—
Satur. 12	30.013	33.4	32.4	N.W.	38.9	40.8	30.4	76.9	27.3	—
Means.	29.550	40.0	38.0		39.3	44.3	34.5	72.4	31.4	0.904

### REMARKS.

- 6th.—Very fine and dry, bright sunshine from sunrise to sunset.  
 7th.—Cold, with high gusty wind; snow in forenoon, which quickly disappeared; rain after 5 P.M.; heavy at 8.50 P.M.; lightning from 10.30 P.M. to 11.30 P.M.  
 8th.—Gale during the night; stormy day, heavy showers, and sunshine at intervals; fine evening, starlight.  
 9th.—Very fine with sunshine all the morning; overcast in afternoon, rain from 5.30 P.M.  
 10th.—Very stormy, high gusty wind; heavy showers in morning, sunshine at intervals; calm in evening and moonlight; rain at 10 P.M., and wind high again till midnight.  
 11th.—Cold, with slight showers of snow and sleet, and high gusty wind during the day; evening fine and calmer.  
 12th.—Very fine, bright, clear, and cold.  
 A squally week, with very great oscillation of the barometer, especially between the 11th and 12th. Much more sunshine than for some time past.—G. J. SYMONS.





24th	TH	Royal Society at 4.30 P.M.
25th	F	Quckett Club at 8 P.M.
26th	S	Royal Botanic Society at 3.45 P.M.
27th	SUN	QUINQUAGESIMA.
28th	M	Royal Geographical Society at 8.30 P.M.
1st	TU	
2nd	W	Society of Arts at 8 P.M.

## LOOKING AHEAD.

HERE is often a great waste of time, money, and material in gardens as elsewhere owing to the neglect of a timely systematic arrangement of plans. No one is worthy of the name of gardener unless he can look twelve months ahead, and, indeed, in some respects he must be able to see much further than that. It is true that "the best laid schemes of mice and men gang aft a-glee," and that some of us need the head of a Von Moltke to be ready for all emergencies; but there is little doubt that the actual committing of plans to paper is a very great help to a student of any kind, for even when such plans end in failure there is generally an opportunity of tracing the cause of the misfortune, and that often brings knowledge for future use which is not easily picked up in any other way. A very busy time both for heads and hands is fast approaching, and anything which can be done now to lessen the coming strain on the nervous system should be grappled with manfully; for although the imagination has to do more now than when the actual contingencies are before us, and it is consequently much harder work, yet there are fewer calls for brain work than there will be in two or three months time, and it will do us good to get rid of a little of the rust which has accumulated during the dull season.

Plans of flower-garden arrangements if not made at the proper time—i.e., during last August, should be completed immediately, with an estimate of the number of plants required of each sort, and these plans and estimates should be accessible to whoever has the responsibility of providing the stock of plants. For the kitchen garden, too, a rough plan should be drawn out every season, showing the proposed site for every spring crop, and when a second crop has to follow in the same year that should be shown too. There are many things to be considered when arranging vegetable crops, some of which are change of crop, suitable position for some important crops which will not do everywhere, condition of the soil as to richness, texture, and friability, convenience of certain positions for making additions to the soil, which are essential to some crops, &c.

Although gardeners generally acknowledge that the rotation of crops is sound in theory, we are often to a great extent obliged to ignore it in practice, and as failures in vegetable crops, excepting in such seasons as 1879, are almost unknown, we are not likely to alter much in this respect. Personally I believe the rules by which theorists would regulate rotations of crops are much too severe, and that when land is well cultivated in all other respects there is no great harm in growing

plants of the same natural order year after year on the same plot, excepting such plants as are allowed to produce seed, and those which are subject to some disease or insects likely to be preserved in the ground. I do not wish to underrate the good services chemists and physiologists have rendered in teaching us how plants are built up, and of what they consist; but as we find their facts of one day have sometimes almost turned to fables the next day, we may be excused for not relying too exclusively on theory. I hold that change of crop, excepting in the cases I have mentioned, is not so great a matter as finding a suitable position for certain important vegetables which are a little fastidious in their likings. For instance, I can show one corner which has had early Cauliflowers succeeded by late salading annually for the last dozen years, and possibly Cauliflowers may have been grown there for half a century before I saw it; still it always produced my best and earliest Cauliflowers, and no amount of theory will induce me to change it. Another plot generally has early Peas followed by Snow's Broccoli, thus going against even the remnant of the rotation theory, which I hold to be sound, but I cannot find a better position for either crop, and they generally succeed admirably, especially the Broccoli.

Many other instances could be brought forward where the ground produces the same sort of crop year after year in a most satisfactory manner, which would go far to prove that nothing is taken from the ground by the quick-growing green vegetables which cannot be restored immediately by the liberal application of good dung and an occasional dose of lime or charred refuse, and that when this is done Cabbages will do as well after Cabbages as they would after any other crop. But sufficient has been said to call attention to this part of the subject.

On the other hand, the act of producing and maturing seeds makes a very great call on the fertilising ingredients of a soil, possibly more so on some soils than others. When I have saved a little seed of any kind hitherto, I have afterwards been able to point out the place of its production to a foot either way for two or three years, but lime and burned clay have been liberally applied of late, and that may possibly make a difference in this respect. I am confident our farmers do not fully appreciate how much the production of seed takes out of the land; and were I to start farming, one of my first experiments would be to top the flower shoots some time during spring of the grass which was intended for hay, for which simple operation I should expect to be rewarded in the shape of a double crop. This might possibly be done by setting the ordinary long grass mowing machine up about 6 inches from the ground. Just compare the weight of grass we take off our lawns in the course of a year with that the farmer gets off a piece of ground the same size, and this, too, while he gives heavy dressings of manure, and we give little or nothing. I am aware that grass for haymaking must have more substance in it than the grass on our lawns possesses, and this I maintain it would have were it topped at the right time and right distance from the ground, and then be allowed to grow again till the flowerstems reached a certain stage.

During the last two seasons hay has taken more than usual out of the ground, because both hay seasons were wet and much of the grass was unavoidably left standing till the seed was quite ripe. I know of one patch which was left for hay in both these seasons. In 1879 it was cut very late, after

most of the seed had fallen, and although it had a liberal dressing which included lime, and the soil itself is a good substantial one, yet there was nothing at all worth cutting on it last year.—WM. TAYLOR.

### ROSES ON THEIR OWN ROOTS.

IN an article bearing on the above subject at page 125 "Y. B. A. Z." takes exception to a few remarks of mine with respect to the slow process of producing Roses from cuttings. Perhaps "Y. B. A. Z." would not have questioned my assertion if I had worded it thus—"To produce Roses 'in quantity' on their own roots is a very slow process." Your correspondent furnishes a very strong argument in favour of my assertion by the experiment he made in 1879, when he "inserted between four hundred and five hundred Rose cuttings, and the year following he had nearly fifty plants large enough for transplanting." If this was all "Y. B. A. Z." obtained from, say, 450 cuttings it is indeed a very slow process, and "Y. B. A. Z." need no longer "wonder it is not more adopted." In comparing the two methods of propagation your correspondent, respecting the Manetti stock, says, "Sometimes they are budded the year after planting, but this is not the ordinary plan." "Y. B. A. Z." is decidedly in error here, as it is a most unusual and unnecessary delay not to bud them the first year after planting, while I know of some who plant Manetti cuttings in nursery rows in the autumn and bud them the following summer.

Respecting "A ROSARIAN'S GARDENER'S" observation on the same page, I am very pleased to find an instance in favour of Maréchal Niel thriving on its own roots, albeit time is young with the plants at present, which undoubtedly received very special treatment in the way of heat, moisture, and feeding during the growing season; and although your correspondent may appear warranted in auguring favourably from their present appearance, they may nevertheless prove a mortifying failure.

I certainly cannot lay claim to having struck "hundreds of Maréchal Niel which in due time produced hundreds of flowers," and would most respectfully ask "A ROSARIAN'S GARDENER" what became of them, and how long they lasted. My own experience, however—which I do not look upon as infallible—has taught me the very opposite. I was furthermore confirmed in this a short time since when visiting a large establishment where flowers are grown for cutting expressly to supply a branch of the establishment at one of the most fashionable seaside resorts in the south. In looking through the Rose houses I chanced to remark to the foreman that out of numerous inquiries as well as from my own knowledge I had never found the Maréchal do well and prove satisfactory for any length of time on its own roots. He instantly drew my attention to a plant, the last one of a batch they had on their own roots, and he at the same time assured me they had never done any good. A case of the kind was never better exemplified, as there were worked plants of the same kind in the house in the most luxuriant health. They had proved highly satisfactory, and so far as appearance went they were likely to do so for a very long time to come, while the plant in question was in a state of advanced decrepitude.—OXONIAN.

REFERENCE has been made on pages 125 and 126 to the young plants of Maréchal Niel here, and I willingly give the details pursued in their cultivation. Before doing so, however, I must say I do not agree with "OXONIAN," on page 86, where he refers to the production of Roses on their own roots as a slow and tedious process. From my own experience I do not consider it a slow or tedious system; for example, take Gloire de Dijon, strike cuttings during February, grow the plants in pots for one season, and they will produce the following spring on an average twenty blooms each. Lamarque, Belle Lyonnaise, and Rêve d'Or strike as freely as the "old Glory," and all will make equally as much wood in a season, but the two former will not bloom so freely. Again, strike cuttings the same month of Catherine Mermet, Isabella Sprunt, Homère, Safrano, and others, and they will in one season make as good plants as those worked on the Manetti or Briar and sold in the autumn by the majority of nurserymen. I can go further—they will make stronger plants the following year than many of those worked upon any stock. I have invariably found that worked plants of many varieties of Teas do not grow with that vigour they do when on their own roots and are independent of the stock. The Manetti as a stock I consider useless except for the purpose of manufacturing Roses under the present system. How long will many Roses live upon it? Leave a portion of the stock above ground, and it quickly dies or makes but poor progress. The Maréchal will not do upon it. It may do well for one year, when it will have exhausted the stock and it

dies. In the majority of cases it will not live long enough for the Maréchal to throw out roots from the union and support itself. The Maréchal will thrive satisfactorily on the Briar for a few years, when it cankers at the union and dies. I have also seen it die when on the Briar when it has not cankered, but the majority die through cankering—the Briar not swelling in proportion to the Rose worked upon it. I believe there is ample proof in the country if collected to prove that the Briar is not a suitable stock for the Maréchal Niel, its life upon it is not long enough.

To return to the plants referred to here: they are now in 10-inch pots, and the Maréchal Niel has grown stronger than the Gloire de Dijon rooted at the same time and grown exactly under the same conditions. Three of the Maréchals scarcely vary more than 6 inches in the length of shoots, which are over 25 feet in length. They are now breaking into growth, and I counted on one plant thirty-three flower buds visible, and there are between sixty and seventy breaks in all at the present. The remaining, say thirty-three, are scarcely forward enough to see the flower buds yet, but without doubt many of them will flower. The smallest plant rooted at the same time has made over 15 feet of growth. Gloire de Dijon did not attain more than 15 feet, but branched and made a greater number of shoots.

Young shoots quite soft were selected for the cuttings of the Maréchal Niel about 2 inches in length, taken with a small heel from not extra strong shoots. The "Glories" were short pieces of the same length cut to a joint, no heel, quite green wood not nearly half ripened, and in this condition the majority of Roses strike well. Six-inch pots were prepared and well drained, filled with loam and sand, three parts of the latter to one of the former, to within an inch of the top, which was all sand. No foliage was taken from the cuttings, not even the bottom leaf. They were inserted as thickly as possible, well watered, and plunged in the propagating frame. The frame was not opened for several days until it was thought watering might be necessary. The admission of air is, I believe, the cause of many Rose cuttings damping off when young tender wood is employed. They quickly callused and the top growth of the Maréchals began, but no harm resulted, as some say is the case when growth takes place at the top before roots are formed. They rooted as quickly as Pelargoniums and nearly as freely. They had the aid of slight bottom heat, and the frame stood in a temperature of 65°. As soon as roots were formed the plants were potted singly in 3-inch pots and returned to the frame for a week or ten days. The growths that had started at the top were pinched and roots were made quickly. The plants were gradually hardened and placed under the shade of some Cucumbers for a few days. They remained in this temperature (65° at night) until they attained about a foot in length, which was in a very short time. Each was supplied with a stake 3 feet in length, and the plants placed in 6-inch pots, and in about ten days removed to a vinery in which a suitable temperature was maintained to gradually harden them for cooler treatment. In a short time the plants were removed to the Rose house and placed at one end of the side stages. The strongest were placed in 8-inch pots and given longer stakes. They soon became too large for the position they were in, and the roof was already too full of Roses trained under it. The greenhouse was selected as their future position, and to make room for them some less worthy objects were thrown away. When removing them towards the end of June they were 4 or 5 feet in length, some more. They were all placed in 10-inch pots to save disturbing them again, but they were not really ready for this shift, as the pots were not so full of roots as I should have wished before placing them in such large pots. A severe check ensued, and growth was brought to a complete standstill. At first I thought it had been occasioned through the operation of potting; but my foreman, to whom the work was entrusted, assured me that could not be the case, as he had done them all carefully himself. Being a trustworthy man his statement on that point was sufficient, and we looked in other directions for the cause, which we never found. To our surprise the whole started strongly from the base, some just above the soil, others below it. The former shoots grew but little more. Nothing in the end was lost by the check or small rest they enjoyed, for they made rapid progress and grew with such luxuriance as I never saw young Roses grow before. The Maréchals reached the top of the house before stopping, a distance of 24 feet from where the pots were standing, and three of them grew 2 feet too long for the house and had to hang down.

The soil used for potting was rich fibry loam, a seventh part of old Mushroom bed refuse, consisting of half leaves and horse droppings, and a 6-inch potful of bone dust was added with plenty of sand to keep the whole porous. No stimulants were given during the season, but plenty of water while growing. The plan's were liberally syringed to keep down spider, aphides, and



mildew with the softsoap mixture that has been detailed from time to time in the Journal.

Two or three of the Maréchal Niels will be planted out in May in an outside border—when the spring flowers are taken off—and the growths brought through to cover the roof inside. I have now a good plant in a pot on one of "OXONIAN'S" favourite stocks, which will be planted out at once inside; its roots will have the entire run of a Peach border 60 feet long, and top growth will be trained in an adjoining house. I may refer to these Roses again at some future day.

There is a magnificent plant of Maréchal Niel on its own roots at Hooton Hall, Cheshire, under Mr. Hanagan's care, with a beautiful clean stem many feet in length, as straight as a gun barrel and as thick as a man's wrist, from which, if I remember rightly, four hundred blooms were cut last year. This fine tree is several years old, and I do not know of one to equal it on any stock.—W. BARDNEY.

#### THE "RECTOR" AND HIS CRITICS.

WHEN either "WILTSHIRE RECTOR" or anyone else can write such a new year's address as the one in the opening pages of this year's Journal, and which startled out of their "retired" mode of living such writers as Mr. Wills, brought the great thinking powers of Mr. Iggulden into operation, and set a host of other writers of more or less note to work, it is evident there is "something in it," and that the vegetable supply is a question of wide and general importance. The "RECTOR" lays it down as a cardinal point in his address "that gardening" (I am quoting from memory, not having the Journal for 6th January by me) "should be extended into the domains of agriculture," and seems to desire to convey the idea that our notions of gardening as well as our gardens are too confined.

Most of the "RECTOR'S" critics have only looked at the matter from a mercantile point of view, and wish to point out that there are already too many extensive gardens devoted to the growth of vegetables for market, and seem to discredit the remark about the town population not being able to obtain a supply of vegetables. Viewing the matter even in this business light I have no doubt that the "RECTOR" is quite right, and that in many towns people do not and cannot get a sufficient supply of vegetable food. A case in point: Last summer Tomatoes could not be bought in Sunderland or Newcastle under 6d. per pound, yet a friend of mine who had a very large quantity of first-rate quality could not get as much for them at the shops in either of the towns named as paid for their carriage! Another: A market grower near Sunderland supplied a shop with Rhubarb at 1s. per bundle of thirty-six bunches; price at shop 1d. per bunch, "and nothing less!" In the latter months of last year Celery was selling in Sunderland at 3d. per head; at the same time thousands of heads were despatched to Manchester at about 1d. per head! All other vegetables are much in the same ratio. So far as this neighbourhood is concerned the "RECTOR'S" remarks certainly apply, as I have no doubt they do in other towns. There does not appear to me to be such a dearth of vegetables, but there is evidently something entirely wrong in the manner and means of their distribution, which remark appears to be borne out by the fact of so many of your correspondents giving direct and conclusive evidence that so much of their produce does not pay them to take to market.

I do not attempt to suggest a remedy. Someone much more conversant with the subject will have to take it up, if it is worth while. As I see it, the vegetable supply is one of the most important matters of our domestic economy at the present time. The "RECTOR" makes a laudable effort to induce the poorer people to partake of more vegetable, and consequently cheaper food; but practically in many places this is impossible, for many reasons. In the town near which I live it would be difficult for the ordinary working man to obtain many vegetables, owing to their high prices; and moreover, very few of the wives or daughters of our labouring classes, and even the artisan class, are able to cook a dish of vegetables; nay, they do not even know what many of them are. Beyond Potatoes and Cabbage, always plain boiled, or a few leaves of Lettuce soaked in bad vinegar, very few of the "women of the people" have any very distinct ideas about vegetarianism.

Then there are all the stupid prejudices inherent in the race to remove. Few Englishmen will forego their steak or chop, even if they are certain that they will be as much benefited by a savoury stew of Onions and bread, or a dish of Apples and rice, which do not cost quarter as much. When the excessive extravagance in the use of so much animal food can be fully impressed upon the masses, the proper uses and values of fruit and vegetables as articles of food thoroughly understood and appreciated, and above all the supply of them so regulated as to be as readily

purchased and at as uniform a rate as a pound of flesh or a three-penny loaf, then, and not till then, will the worthy "RECTOR'S" ideal "future of gardening" be attained. To attain this much-wished-for end we must have more of such writing and learning as that alluded to, not only in the *Cottage Gardener*, but in all papers that are read by the masses. Two years ago, after a careful trial of vegetable diet, I endeavoured to set forth its merits in a discussion then being carried on in a local contemporary. My experience in the matter was not at the time at all pleasant, but I have the satisfaction of knowing that since then some of my most earnest opponents are now confirmed vegetarians and teetotallers. Eagerness to assist the "RECTOR" in his good cause has impelled me to take part in the present discussion.—PETER FERGUSON, *Mere Knolls, Monkwearmouth.*

#### HOYA BELLA.

ONE of the most charming little plants for the stove is *Hoya bella*, an umbel and spray of which are shown in the annexed woodcut. It is a diminutive and delicate counterpart of the



Fig. 31.—*Hoya bella*.

well-known *Hoya carnosa*, and, like its equally pretty relative *H. Paxtoni*, is much better suited than the old species for a shelf near the glass in the stove, as they are both dwarf and compact in habit with small umbels of flowers. These two species have long been great favourites with me, and I find they are, when well grown, invariably admired. Similar treatment suits them both—namely, a compost of peat, sand, and finely broken charcoal, the pots being thoroughly drained. A warm position in the stove is required where the plants can be fully exposed to the light, or otherwise they are liable to become sickly and unsatisfactory.

*H. bella* was discovered by Mr. T. Lobb in the Taung Kola Mountain, Moulmein. From him Messrs. Veitch & Sons obtained it, and at their Exeter nurseries it first flowered in the summer of 1848. It has thus been in cultivation more than thirty years, and might be expected to be in almost every collection of plants; but such is by no means the case, for I know many gardens of



more than ordinary pretensions where it is not grown. This neglect of a beautiful plant is strange, for when its delicate wax-like white flowers with their rich purple central rays are fully expanded, the plant is unrivalled except by its near relative *H. Paxtoni*. The neat trusses of flowers are invaluable for cutting when something particularly choice is required.—L.

#### EARLY TOMATOES.

UNDER the above heading Mr. Muir, on page 108 of your last issue, had a very interesting article. He says that the present is a good time to sow the seed for an early crop of Tomatoes, and he is right if early and late crops are all that are required.

If Tomatoes are so highly esteemed as they are said to be, why not have them all the year round? They are easily grown, any ordinary rich soil will suit them, and with careful attention to tying, pinching, and watering there is no difficulty in growing them successfully.

We are cutting fruits from our early crops now, and have been doing so since the beginning of the year. For an early crop of Tomatoes I recommend plants raised from cuttings taken in August in preference to seedlings, as I find that cuttings fruit more freely. Their final shift may be either into 10-inch pots or into boxes of a suitable size. They will flower freely, and by the end of October plenty of fruit will be formed for a crop; and when the plants are introduced into a house where a temperature of from 50° to 60° can be maintained during the dull months of the year the fruits will swell rapidly, and by the beginning of January will give a plentiful supply of good Tomatoes.—J. M. K.

#### THE EFFECTS OF ELECTRICITY ON VEGETATION.

(Continued from page 128.)

**MILDEW.**—It has been pointed out that plants consist of two different conditions, one taking the stain and the other resisting it; the one taking the stain belonging to the root or supply system, the other to the oxygenated or product class. Procure a leaf spotted with mildew, and dip it for an instant into the dilute magenta stain, and all the mildewed part will become deeply dyed in opposition to the unaffected portions. This at once proclaims the fungoid growth to belong to the root section. Take a thin slice out of any part of a Mushroom, or any of the Toadstools, and it will take the stain very readily, the gills least so, but all showing the same tendency. But the Mushroom or the Toadstool is only one part of the fungus, representing the flowering or fruit portion of the true plants; the other, or more mischievous division, is the creeping root which usurps the nutrient fluid of the victim upon which it feeds. This root portion, or "spawn," is composed of single elongated cells attached to each other lengthwise in strings, and continually extending and creeping along amongst the cells, choking up the intercellular spaces and appropriating their nutriment. It is a noticeable point that these growths seldom or never penetrate the cells themselves, but are almost if not entirely confined to the intercellular spaces and divisional walls, as may be seen under the higher powers of the microscope in well-prepared specimens. Now this "mycelium," or spawn, may exist for an almost indefinite period without advancing to fructification, and it is only when the specially favourable conditions for this ultimatum are brought into existence that the Toadstools and Mushrooms appear. There is one peculiar feature pertaining to fungi that separates them completely from the general bulk of vegetation—they are altogether entirely destitute of chlorophyl grains—the green colouring matter of the leaves of Ferns and flowering plants, &c.; and by the absence of this, and there being no other substance corresponding with or replacing it, these organisms are thus demonstrated to be non-polar, or in other words, to be associated with, and to partake of the particular electric condition of the part to which they belong. In referring to the experiment with Cress seed (page 266, last vol.), those seeds which were around the positive, or oxygen-attracting electrode, were the first to germinate; but they very soon died and blackened as if burnt, which in fact they were. They also germinated heels upwards, and ultimately became infested with the mycelium of a fungus. With regard to this blackening process in the case of the seed, it was purely an electrolytic proceeding. Dip a match-stick or a piece of straw into concentrated sulphuric acid, and it will instantly become charred in a similar manner. The oxygen of the acid at once seizes upon the hydrogen of the albuminous compound, and so liberates the carbon in the state of charcoal. With the battery the oxygen is provided by the electrode. But then the air immediately in contact with and surrounding the seeds being rendered electro-negative, or reversed from its normal state

and made to correspond with that of the earth, the radicles or rootlets were also made to follow the same order, and to push their way into the negative as usual, which in this instance proves to be the air instead of the earth, and hence their inverted position. Now, as the electrolytic action will still be going on after the death of the seed, and not ceasing with this change, the albuminous material of the seed will also be undergoing further changes and necessarily be forced into some other form.

Around the negative electrode the seeds were longer in germinating, but when they did so they were well plumped out and exceedingly bright-skinned; they grew on healthily for some little time, or so long as the required nutriment contained within themselves was unexhausted; but when this supply ceased and there being no root-action to replenish the store, growth came to an end. These results fully demonstrate the dependance of the two conditions upon each other, one to prepare the food and the other to convert it into growth. Hence, had the two actions been simultaneously or alternately exerted upon the same seed, one would have furnished the supply and the other converted it into growth. But as the negative growing action was absent from the positive electrode we have the positive forcing the nutriment it goes on forming, into a special growth of another kind—the cellular threadlike mycelium of a "fungus."—W. K. BRIDGMAN, *Norwich*.

#### THE METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday the 16th inst., at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President, in the chair. J. L. Bell, F.R.S., J. Bernays, A. W. Blyth, J. Church, F. W. Cory, S. Cutler, T. L. K. Edge, C. Horsley, W. J. Howard, C. Kelly, M.D., G. Lingwood, W. Macgeorge, Capt. J. P. Maclear, R.N., A. Rigg, and H. C. Stephens, were elected Fellows of this Society. The following papers were read:—"Relative Humidity," by Charles Greaves, M. Inst. C.E., F.G.S. The object of this paper was to show that the term "Relative Humidity" was frequently the cause of misunderstanding, and that it was desirable that some other tables with a more correct denomination should be used in order that reliable values of this factor in our climate should be recorded. "On the Frost of January, 1881, over the British Isles," by William Marriott, F.M.S. The author pointed out that the severe frost of the 7th to the 26th was remarkable for its unexpected appearance, its long continuance, and its sudden breaking up. The weather during the first week of January was comparatively mild, but frost set in over the north of Scotland on the 5th. The author then gave the lowest thermometrical readings from about three hundred stations in the United Kingdom for each day of the frost, which were plotted upon diagrams clearly showing the relative severity of the weather experienced in each district. The lowest readings were, 15° at Garstang on the 16th, 22° at Blackadder, 16° at Kelso, 15° at Stobo, 11° at Thirlestane Castle, and 10° at Melrose on the 17th. Reference was also made in detail to the rivers and lakes which had been frozen over, and to other incidents proving the remarkably low temperatures which had occurred. Some idea of the intensity of the frost may be gathered by the fact that in the south of Scotland the temperature fell below 10° on more than eleven occasions, below 20° on nineteen occasions, and was below 32° on twenty-five to twenty-nine occasions. In the London district readings below 10° occurred on two or three days, below 20° on ten days, and below 32° on twenty days. In Ireland temperatures below 10° were registered on six or seven occasions, below 20° on twelve or fourteen occasions, and below 32° on twenty-two to twenty-four occasions. No place in the British Isles was exempt from the frost; even at Scilly the temperature was below 32° on three days, the lowest being 29° on two occasions. The winter seaside health resorts afforded no protection from the frost; at Penzance the temperature fell below 32° on ten occasions, at Torquay on eleven occasions, and was below 20° on six occasions; at Ventnor it was below 32° on nineteen occasions, and below 20° on three occasions; and at Bournemouth it was below 32° on twenty-three and below 20° on ten occasions. The heavy falls of snow prevented the frost from penetrating far into the ground, but where the snow was cleared away the temperature of the soil fell considerably. A diagram was exhibited showing the mean temperature of January in the neighbourhood of London for each year from 1774 to 1881, from which it appeared that the low mean temperature of 31.6° for last month had only been surpassed on five occasions, and that the three years 1879-81 have been very cold, the mean for this period being only 32.2°; there is no instance during the past hundred years of any three consecutive Januarys having so low a mean temperature.

• **THE BEST LATE POTATO—IRELAND.**—The question is whether such a list of three hundred varieties as Mr. Shirley Hibberd publishes (referred to in *Journal* page 133), does not mystify instead of enlighten. To the general cultivator, would it not be more important to know which are the best earliest, intermediate, and late varieties? But then I may be asked, Have they not a tendency to degenerate? If the seed is not properly selected, and the

worst is planted, as sometimes happens, and on the same soil, there can be little doubt that the answer must be in the affirmative. I conducted experiments at the Government Training Agricultural College at Glasnevin about twenty years since, and except one or two there are few of the then varieties now in general cultivation. As a matter of fact there is a tendency to degenerate, but the degeneracy is mainly owing to want of selection. To all my inquiries in Ireland at present, and I have a short time since been through the four provinces, the best general crop Potato is the Champion.—W. J. M., *Clonmel*.

#### CULTURAL NOTES ON GLADIOLI.

MUCH has been written concerning the successful cultivation of Gladioli, but I venture to offer a few hints upon them, having grown them with success for some time. An open warm situation sheltered from high winds should be chosen. Apply manure liberally, and trench the ground about 2 feet deep in winter or early spring. I do not approve of the situation being changed every season; on the contrary, when you have been at the trouble of having the ground well manured, let the Gladioli remain there for a few seasons. To secure a continuous display of flowers during the autumn months plantings should be made from the beginning of March to the middle of May. The corms should be planted 1 foot apart and at least 6 inches deep, covering each with prepared light soil. In some parts of the country where the atmosphere is dull and soil cold in the months of March and April I advise potting the corms singly in 5 or 6-inch pots, employing a compost of rich loam, well-decomposed manure, and a little sand; place them in a greenhouse or cool frame, where they will be safe from frost; attend carefully to the supply of water and in ventilating, and by the end of May all danger will be past. The plants by that time will be about 6 inches high. See that they are well hardened off, and plant them out in the prepared ground. Those that are planted out in March and April in more favourable situations will be well forward. After the plants are about 6 inches high the ground should be covered with half-decayed manure or cocoa-nut fibre refuse. Apply water liberally during dry weather. Stake the plants carefully as they advance in growth, and as soon as the flowerspikes appear weak liquid manure may be advantageously given once or twice a week. Successful cultivation depends in a great measure upon liberal manuring, deep planting, and plenty of water during the growing season.

Gladioli are invaluable for conservatory or greenhouse decoration during the autumn months. For this purpose the corms should be potted about the middle of March in 6 and 7-inch pots, using a rich soil; protect from spring frosts; in May plunge the pots in an open, warm, sheltered situation; and be careful in supplying water, especially during dry weather. Stake the plants carefully as required. As soon as the flowerspikes appear a liberal supply of liquid manure should be given once or twice a week. When the flowers begin to show colour the plants should be removed to the greenhouse or conservatory.—W. MUIR.

#### PLANT APPLE TREES.

I NOTICED in his speech at the dinner of the Chippenham Agricultural Society Sir Gabriel Goldney stated that "he saw from the agricultural returns no less than a quarter of a million of acres of land had, during the past fourteen months, been turned into orchards and market gardens."

Permit me, as having paid some attention to the subject of fruits both theoretically and practically, to say a word on this subject, for I verily believe there is benefit to be derived from the cultivation of fruits, particularly of Apples; benefit to be reaped in a few years by the owner and tenant.

Go where one will American Apples are in fruit-shop windows—Red Baldwins show their rosy, and Newtown Pippins their olive green cheeks. I am told that each year more and more Apples from America are in the market. This surely need not be; for Apples, if of the right sorts, and the trees of the right age, are in average years one of the surest of crops. But more than half the Apple trees in England, save in the cider districts, want grubbing up; they are too old, they are "have beens," but their day is over. The miserable, gnarled, bent, blight-beset lichen-covered trees one sees in numbers of orchards have for years been only fit for firewood. Again I would say, Plant Apple trees on arable land; the standing crops preserve the young trees from mischievous boys, and the young roots are uninjured by entangling grass. Mind at the same time the plough does not go too near the said roots. The land can be regularly cropped until the trees grow of considerable size—a double gain,

as there will be two crops, and also the Apples cannot be so easily pilfered—then after some years lay down the land in grass. Another hint: Mind and plant, but not bury the trees. As to soils, the Apple certainly prefers a sandstone, while the Pear rejoices in a calcareous soil; still, any good loam will do. The situation should be to the south or south-west, and a protecting wood to the east and north is of value in preserving the blossoms from the spring frosts. As to purchasing trees, I would say, Buy of the large nurserymen only; they are sure to sell you trees true to name—this is very important, and they are able to sell at a reduction. It would pay landlords to be the purchasers. If my plan be judiciously followed there need not be in a dozen years a single Apple sent to us from America.

On the subject of Apple culture I have consulted one of the very first and highest authorities in England. His reply to me is as follows—"I think your suggestion of planting far more land with Apple trees is a very good one. I know there are thousands of acres in this country let at 30s. to 40s. an acre that would bring £5 after being planted ten or twelve years with fruit trees of good and suitable sorts. Of course the trees must be protected from the injury of cattle and such like damage. Below I give the names of some of the most useful and robust-growing kinds for profit, sorts applicable generally for eating, cooking and grinding, or any other purpose that the market for the time may prove most advantageous. I would never advise planting sorts that can only be used for cider, because the sale is so limited; and it is a well-established fact that the highest flavoured Apples make the richest cider—such as Golden Pippin, Golden Hervey (brandy Apple)—in short, all such as have enough malic acid, and this is readily tested; those that turn brown soon after being cut with a knife are always good for cider.

"The following are good and profitable kinds:—Lord Snffield, Keswick Codlin, Cellini, Dumelow's Seedling, Blenheim Pippin, Worcester Pearmain, Ecklinville Seedling, Golden Winter Pearmain, Beauty of Kent, Malster, Tower of Glammis, and Peasgood's Nonsuch."

Every word of the above I beg to endorse. I say, Plant these Apple trees and at once, for there is just time—plant carefully, almost on the soil, spread carefully the rootlets and tender fibres, do not roughly thrust the trees into holes, but use them tenderly and stake well, and sure profit will come.—WILTSHIRE RECTOR (in the *Devizes Gazette*).

#### EFFECTS OF THE FROST IN THE ISLE OF WIGHT.

"W. J. M." asks for information with regard to Veronicas, as to how they have withstood the severe frosts. There are several varieties of these shrubs grown in this neighbourhood in the Isle of Wight; in fact, Veronica Hendersoni is used in many gardens as a hedge planted in the soil by the side of walls, where the walls are used as retaining boundaries on sloping banks, which is often the case in the Undercliff gardens. I do not know whether all the forms, such as Hulkeana, decussata, salicifolia, and pinguifolia, are grown here, but in nearly every case the upper shoots and more succulent growths have suffered severely, especially where exposed to the cold winds which preceded the snow of the 18th of January, and also where the plants were not protected by the snow, which fell to more than the depth of 2 feet in this neighbourhood, and in fact all over the island on the 18th and 20th. As there was a strong south-easterly wind blowing at the time the snow fell, especially on the 18th, very deep drifts were formed, the remains of which are still to be found in some places about here (Ventnor) even now, more than four weeks after the fall. In nearly all cases the younger shoots of all the different species of Veronicas I have examined have been quite killed, and the older growth much damaged. One reason why the younger shoots have suffered so much was owing, I think, to the very open and unusually warm weather at the end of November and all December; in fact there was no frost of importance here till after the 10th of January. All the Veronicas, therefore, were still growing, and most of the varieties still in full bloom.

I am afraid many other varieties of the less hardy evergreens have also suffered much, as some of the kinds of Euonymus, especially the silver variegated variety. All the plants, too, of Eucalyptus globulus are killed, some of which at Bonchurch had survived several winters, and were from 20 to 25 feet high. There are several very fine trees of the Paulownia imperialis in Ventnor and Bonchurch which were very full of flower buds, the spikes in some instances from 7 to 10 inches long. The shoots are still quite upright and have not flagged, but the flower buds seemed so unusually forward at the beginning of the year, it is still rather a question how much they may have been injured, as in no instance could they be protected by snow; and those who, like myself, are



great admirers of the beautiful flowers of this tree, will be anxious to know whether the blooms will stand this late severe cold. In many places the flowers of the Laurustinus have been much injured, though the plants themselves seem to have withstood the cold very well. Plants of Photinia had in warmer places made too much young growth, and these younger leaves are much injured if not quite destroyed, and I fear in most cases they will not flower. Flowers, too, of the Berberis Darwinii were unusually forward, and where they were open are killed, but the plants themselves do not seem to have suffered, and young flower buds which were not too far advanced will still open when warmer weather comes. Escallonia macrantha has suffered much in the same way, though I fear in some cases more severely.

A great many of the houses and villas in Ventnor and the neighbourhood are covered with plants of Passiflora caerulea, which had an unusual amount of the orange-coloured egg-shaped fruit hanging from their trailing stems; in some of the more sheltered places there were flowers and buds still on these plants at Christmas time. These have also suffered severely, though it is to be hoped that they will all make fresh growth from the base. In one garden at St. Lawrence there were some very fine bushes of the Mediterranean Heath, the Bruyère, from the roots of which the so-called briar pipes so much in vogue among smokers are made. These plants were quite crushed down with the weight of snow, but the snow protected them from the frost, and though the flowers were injured the plants themselves will recover. The Bay trees, Aucubas, Arbutus, and Ilex all seem to have withstood the frost very fairly, though in some instances the boughs of the Ilex were broken from the weight of snow. The change of temperature was very sudden, as even early in January many of the bedding plants, such as Lobelias, Geraniums, and Calceolarias, were still partially blooming, and on the 3rd of January in a garden at Ryde I saw a Rhododendron in bloom and Camellias ready to open.—C. P. P.

#### ZONAL PELARGONIUMS FOR WINTER FLOWERING.

HAVING read in the Journal during the last few weeks of the good qualities of the double-flowering Pelargonium Guillon Mangilli for winter flowering, I should like to bring to the notice of the readers of the Journal a valuable single-flowering Zonal—viz., Charles Smith, raised, I think, by Mr. Pearson. The colour is a brilliant dark crimson, a colour that strikes the eye amongst all the others, and is most effective. I have tried a great many varieties, but I consider this one by far the best for winter or summer flowering. I have had some plants of it in flower from early spring up to the present time without intermission, and still blooms are coming. It has several good points—viz., hardiness, free flowering, immense trusses, brilliancy of colour, good substance, and compact growth. My greenhouse has been kept most gay up to the present time with it, and has been admired by all who have seen it. If I could only grow one sort it would most certainly be this. The gardeners round here admit they have never seen one to equal it for winter flowering, and anyone who has seen it need never be without flowers all through the year.—P. R., Wigan.

[We presume our correspondent means Charles Schwind, which was raised by Mr. Pearson and answers to the description given. It is very rich in colour and flowers profusely.—EDS.]

#### GLAZING WITHOUT PUTTY ABOVE THE GLASS.

IN reply to numerous correspondents asking for further information to that given at page 550 of your last volume, I hardly know what more can be said, only that an error of mine or the printer's occurred there, which is certainly misleading, as it reads that the "wood" is to be dressed off level with the glass, "putty" being the word intended. I have only to repeat that the rebate in the rafters and sashbars is prepared in the ordinary way—i.e., ploughed to a depth of from one-half to three-quarters of an inch, and a quarter to half an inch wide for the reception of the glass, according to its thickness, not differing in any respect from ordinary lights in the formation of the rebate; the only divergence from ordinary glazing is that no putty above the glass is used. The glass is to have a bed of putty to lie on, and, the square being well pressed down, a copper tack at each bottom corner will prevent the glass slipping down, and two above the glass a little higher than the bottom of the square will prevent it being blown out. The next square is then introduced with not more than half an inch of lap on the square below, and a tack on each side so as to receive the edge of the glass will prevent the square slipping down, and at the same time secure the upper part of the square below from being lifted. Tacks above the square as in the

lower one at about an inch from the bottom will secure it in position, and so on to the top of the sash. In pressing the glass down some putty will be squeezed above the level of the glass; this should be dressed off level with it and give the rebate above the glass a coat of paint so as to reach on to the glass, but not more than the width of rebate, the sharp edges of the upper part of which having previously been planed off; but this is not material. The roof will be perfectly watertight, and repairs are much more readily effected than with putty above the glass.

The advantages of the system are—not a quarter of the putty as in the old system is necessary, and as there is none on the outside to part from the wood or glass and let in the wet, whilst repairs are done in less than a quarter of the time, all that is necessary being to draw the tacks with the pincers, remove the bottom putty, renew it, and put in the new pane. As to its interfering with painting, there is the same rest for a ladder as with putty above the glass, and there is only woodwork to paint. The tacks may be three-quarter-inch tinned, or preferably copper, and are best with small heads, but sprigs answer very well. This mode of glazing is cheaper, easier, and every way better than with putty in any form above the glass.—G. ABBEY.

#### AN INTERNATIONAL ROSE ELECTION.

IN November, 1879, we published a list of questions from the President of the Agricultural and Horticultural Society of Wittstock, Germany (Frederich Schneider), to which he solicited replies with the object of reducing the four or five thousand Roses grown in gardens to a limited number of really valuable varieties that may be specially recommended for cultivation. To those questions 72 replies were submitted by horticultural societies, 155 by nurserymen, and 135 by amateurs in Germany, France, England, Belgium, Italy, America, &c. In the preface to the results of this election Herr Schneider states this is the only list in existence where the age of the varieties and the raisers' names are attached—an error that needs correction, as the plan has been adopted in several elections that have appeared in our columns. In the election in question a great number of Roses are named, but we only publish the number requested under each section.

##### RESULTS OF THE POLL.

Which are three most perfect Roses as regards construction and form, substance, shape, habit, and scent in the following colours?

HYBRID PERPETUAL AND BOURBON ROSES.—*Pure White*.—Boule de Neige, Baronne de Maynard, and Louise Darzens. *Tinted White, Blush, and Flesh Colour*.—Souvenir de la Malmaison Capitaine Christy, and Elisa Boëlle. *Pale Pink and Light Rose*.—La France, Madame la Baronne Adolphe de Rothschild, and Madame Marie Finger. *Bright Pink and Deep Rose*.—Paul Neyron, Victor Verdier, and John Hopper. *Carmine*.—Marie Baumann, Madame Victor Verdier, and Alfred Colomb. *Scarlet and Vermilion*.—Fisher Holmes, Souvenir de Spa, Duke of Wellington, and Sir Garnet Wolseley. *Purple and Crimson*.—Louis Van Houtte, Sénateur Vaisse (Fran. Fontaine), and Eugène Appert. *Dark Crimson, Brownish, and Blackish Maroon*.—Prince Camille de Rohan, Souvenir de William Wood, and Empereur de Maroc. *Violet*.—Pierre Notting, Reine des Violettes, and Gloire de Ducher. *Striped*.—Panachée d'Orleans, Panachée de Luxembourg, Perle des Panachées (Village Maid).

TEAS AND NOISETTES.—*Pure White or Slightly Tinted*.—Aimé Vibert, Marie Guillot, and Sombreuil. *Blush and Pink, Rose*.—Souvenir d'un Ami (Queen Victoria), Adam (President), and Madame de Vetry. *Tinted Pink and Rose*.—Homère, Madame Céline Noirey, and Madame Bérard. *Pale and Bright Yellow*.—Maréchal Niel, Perle de Lyon, and Perle des Jardins. *Yellow Tinted*.—Gloire de Dijon, Belle Lyonnaise, and Adrienne Christophle.

WHICH ARE THE THREE MOST BEAUTIFUL MOSS ROSES?—Souper et Notting, Cristata, and Rosa centifolia muscosa.

WHICH FIVE VARIETIES OF ROSES ARE THE GREATEST FAVOURITES AND THE MOST GENERALLY CULTIVATED IN THE DISTRICT OF THE CORRESPONDENT?—Gloire de Dijon, Souvenir de la Malmaison, Général Jacqueminot, La France, and Maréchal Niel.

WHICH FIVE ROSES DISTINGUISH THEMSELVES ESPECIALLY BY THEIR UNINTERRUPTED BLOOMING?—Gloire de Dijon, La France, Souvenir de la Malmaison, La Reine de l'Île-Bourbon, and Madame Alfred de Rougemont. *Through Superior Scent*.—Maréchal Niel, La France, Gloire de Dijon, Rosa centifolia, Pierre Notting. *Through their Hardiness and Insensibility Against Frost*.—Général Jacqueminot, Jules Margottin, Triomphe de l'Exposition, Rose de la Reine (Reine du Midi), and Baronne Prevost.

WHICH FIVE HYBRID PERPETUALS ARE THE FREEST AND MOST ABUNDANT BLOOMERS FOR THE SUMMER?—La France, Jules Margottin, Louise Odier (Madame de Stella), Souvenir de la Malmaison, and Général Jacqueminot. *The Freest and Most Abundant Bloomers for the Autumn*?—La France, Aimé Vibert, Gloire de Dijon, Général Jacqueminot, Prince Camille de Rohan, Pierre Notting, and Victor Verdier.

WHICH ARE THE TEN BEST ROSES FOR FORCING?—Jules Mar-



gottin, Louise Odier (Madame de Stella), Triomphe de l'Exposition, Rose de la Reine (Reine du Midi), Mistress Bosanquet, Hermosa (Madame Neumann Melanie Lemarié), Gloire de Dijon, Souvenir de la Malmaison, John Hopper, and La France.

WHICH FIVE VARIETIES ARE BEST ADAPTED FOR CULTIVATION IN THE ROOM?—Hermosa (Madame Neumann, Melanie Lemarié), Gloire de Dijon, Mistress Bosanquet, Cramoisi supérieur, and Grossherzogin Mathilde.

WHICH ARE THE THREE MOST BEAUTIFUL PILLAR ROSES?—Queen of the Prairies, Baltimore Belle, Gloire de Dijon, and Climbing Jules Margottin.

Which Ten Novelties from 1873 to 1878 are of such Remarkable Beauty that their Cultivation and Distribution can be Recommended without the Slightest Hesitation?—Capitaine Christy, Madame Marie Finger, Perle de Lyon, Abel Carrière, Eugène Fürst, Jean Liabaud, Perle des Jardins, Duchesse de Vallombrosa, Star of Waltham, and Madame Lambard.

### ADIE'S LAWN EDGE-CLIPPER.

VARIOUS implements have been devised from time to time for reducing the labour involved in the tedious process of clipping the grass edges of lawns and verges, but none of them that we have tried approaches in practical utility the one we now submit to our readers.

The machine may be described as a pair of self-acting edging shears of the old construction adapted to the new style of operating. A cylindrical roller having an axle working in a journal attached to the tang of the lower blade runs on the grass, and, by

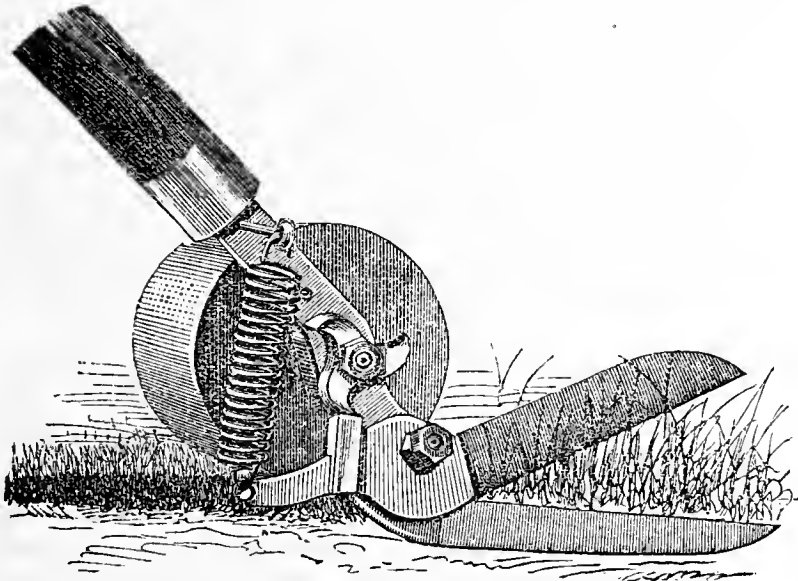


Fig. 32.—Adie's Lawn Edge-Clipper.

means of a three-armed cam attached to the other end of its axle, lifts the top blade of the shears by pressing on a tooth attached to its tang end, and as the cam passes the tooth the top blade is shut with a slam by means of a spring, cutting the grass instantaneously, and clearing the way for the forward run of the machine preparatory to the next cut. As the rate of cutting is regulated by the rate of propulsion any speed may be attained, ten times faster than by the old shears being easily obtainable. In use it needs a pressure of 2 or 3 lbs. downwards, the under blade being held with its point from a quarter to half an inch under the turf edge, and the back of the blade itself pressed on the earth edging, the cut being thus close, and the edge smoothed by the blade passing along it.

Mr. Adie, amongst a large number of scientific and other patents (twenty to twenty-five), was the fortunate inventor of the very popular horse clipper, now reaching over the million manufactured in fourteen years, and to which invention, like so many English patentees, he only established his right by a double suit in the House of Lords.

This edge-clipper we have tried, and know not which to admire most—its simplicity or efficiency. It is as great an advance on the old shears as the lawn mower was over the scythe, and we suspect will eventually find its way into all pleasure grounds and gardens where lawns are more or less extensive. The roller is 5 inches in diameter and 4 inches wide, the blades of the shears being 6 inches long. The shaft is about 4 feet in length.

FUTURE OF GARDENING.—“WILTSHIRE RECTOR'S” remarks on “The Future of Gardening” were interesting to horticulturists, as has been proved from the number of contributions that have

since appeared relating to the subject. I am confident there is a great future for gardening. Many of your readers have condemned farmers for vegetable growing, stating that the supply exceeds the demand; that may be so, especially in mild winters. A far more promising crop is fruit, of which there is very rarely an overabundance. I think farmers could probably grow a great many varieties of fruit trees. Cornish growers very rarely have a superabundance of vegetables or fruit.—W. ROBERTS, *Penzance*.

### STRAWBERRY FARMING.

(Continued from page 106.)

Cultivation.—I may again remark that the methods of cultivation I describe are not those generally practised among the growers in this quarter, where there is certainly much careless work. Whole fields may be seen where the plants have had all due attention for one season, but thereafter have been neglected, the consequence being that the native weeds and grasses have so usurped the soil that they have annually to be mown down with the scythe. I describe only those methods that are followed by the most successful cultivators.

As soon as the young plants are fairly rooted and begin to grow the surface should be lightly stirred with the hoe, and this should be repeated during the season as often as weeds are observed. Thorough attention to cleanliness during the first season will save much trouble the following years. When runners begin to appear, or at least before they are rooted, they should all be cut off. Children do this very quickly with sharp knives or scissors. This process may have to be repeated at intervals during the season. The resources of the plants are thus concentrated, and their vigour enables them to form strong fruit buds in anticipation of next season's fruit. At the time the first runners are cut all fruit blooms of spring-set plants should also be removed, as it is better to forego the chance of a meagre and uncertain return the first year to ensure a bountiful crop the second. After the last hoeing for the season and just as winter is approaching the matter of mulching is to be considered. We recommend it in all cases as a protection against that alternate freezing and thawing, so detrimental to plants in the longer days at the beginning and end of winter. Whether it is necessary also for the purpose of further enriching the soil will depend on the liberality with which it was treated before setting the plants. Generally, however, we consider that as the young plants have not yet to any great extent exhausted the manure applied at planting, some mulch of less manurial value may be applied for the first winter. Spent bark, fibre refuse, or decayed leaves may be employed, being sprinkled to the depth of an inch or so along the crowns of the plants; or if none of these is available a little of the soil may be drawn over them at the last hoeing. For succeeding years, however, nothing is so good as a compost of the decayed remains of the previous season's weeds, turf, &c., that has been reduced by mixing with lime and afterwards mixed half and half with fresh stable manure allowed to heat thoroughly in order to kill all seeds, and turned several times in course of the autumn. This compost should be carted along the rows and spread directly from the cart. The drill-harrow or grubber should afterwards be run between the rows to slacken the soil and leave all neat for winter.

After the danger from heavy frosts is over in early spring the hoe should be again at work, care being taken to remove the mulch that may lie directly on the crowns of the plants. Unless weeds are very persistent no more care should be required until the appearance of the new runners, which should be cut as before. The more faithfully this is attended to the greater will be the crop, for it so happens that the runners and fruitstems are thrown out about the same time, and the unchecked growth of the former is much against the setting of a large crop of fruit.

By this time the grower ought to have his mind made up as to how he proposes to market the crop. If it is intended for table use provision must be made for keeping the fruit clean; but if for preserving factories no special attention to this is required, as the berries can be washed, and are not objected to on this account. I usually lay rye straw between the rows and close to the plants, and though this is rather expensive—viz., from 50s. to 60s. per acre, I consider it a profitable investment. In wet weather it keeps the fruit clean and is comfortable for the gatherers; and in dry weather it preserves the soil cool and moist, keeps down weeds, is of some manurial value, and after being raked off in autumn is still of use in the stable or piggery. Where straw is not obtainable forest leaves, spent tan, or fibre refuse may do equally well, though I have not tried these.

Reserving remarks on gathering and marketing the fruit for a future paper, as also on the question of artificial manures, and special measures for protection against the enemies of the Straw-

berry, I shall resume the routine of work for the rest of the season. As soon as the fruit is gathered the runners that may meanwhile have been thrown out should all be cut. This is most satisfactorily done among old plants by means of a common reaping hook or sickle-shaped knife set in a handle about 2 feet long. Many use a revolving cutter made from an old circular saw and fastened to the side of a light plough, but this is not a satisfactory system; it only cuts those runners that are not in the line of the plants, and, especially in stony ground, soon becomes so blunted that it rather tears than cuts, and consequently tends to disturb the old plants. All loose straw, runners, and weeds should now be carted off and a more thorough cleaning commenced. As the ground is now trodden hard from traffic in gathering, &c., it must be thoroughly loosened between the rows either by hand labour with the digging fork or by means of the paring plough or grubber passed both ways. In the former case though more expensive, the whole work may be finished at one operation, the weeds from several rows being thrown together into one and wheeled off as they accumulate. In the latter case the common hoe, or better still the American steel-toothed hoe, must be used to finish the work. The soil should be gradually worked towards rather than away from the plants, so as to give the new roots now forming a better chance. A fresh mulch and a final turn of the harrow finishes the work for the season. In succeeding years the routine of work should be similar to that just described. The winter season may be profitably occupied in collecting material suitable for compost, such as turf, road scrapings, leaves, runners, &c., to be reduced by means of lime and worked up with manure as before described. Where clearing has been neglected in autumn it is better left till spring. In conclusion I may add that all experience in this quarter favours deep cultivation. I have just opened a gravel pit in a plot of Elton Pine plants, and find a mass of the root fibres round its sides that have penetrated to the depth of from 24 to 27 inches, half of that into the gravel; and as these roots seem to have taken a nearly perpendicular direction, there is far less risk of damaging them by deep digging between the rows than is generally imagined.—WILLIAM RAITT, *Blairgowrie*.

## NOTES AND GLEANINGS.

JUST on the eve of going to press we have received two small but excellent works on gardening—"CARTERS' PRACTICAL GARDENER," and "ROSES IN POTS," by Mr. William Paul, both of which demand fuller reference than we can give now. Mr. Paul's book is the fifth edition of a work that all cultivators of Roses in pots should possess. Messrs. Carters' issue is an entirely new work, new both as regards writers and many of the subjects. We can only say at present that it far surpasses all former editions in appearance, size, and quality, and that all those who purchased the old work and were satisfied with it may safely purchase the new; while those gardeners and amateurs who do not possess "Carters' Practical Gardener" need not hesitate to add it to their libraries, for its subjects are varied and its teachings reliable.

— WE learn that the specimen of *PRITCHARDIA GRANDIS* referred to last week is not the only one in this country, as Messrs. Veitch have young plants, and others are included in some English botanic gardens. It appears a case of young plants was sent to England a short time since, from which the stock has been derived. There is thus a probability of this handsome Palm coming into cultivation, though the number of plants must necessarily be extremely limited at present.

— AS will have been seen by an advertisement in our last issue, Mr. W. Iggulden has prepared a *MANUAL ON THE TOMATO*, giving cultural directions for maintaining a continuous supply of fruit. The work contains chapters on early, successional, and late crops; culture in frames and in the open air; growing the fruit for exhibition and market purposes; with instructions for amateurs, an estimate of varieties, and a list of

uses to which Tomatoes may be applied. The work is thus comprehensive; while the information, being a record of the practice of one of the most successful Tomato cultivators of the day, is thoroughly sound. The author has evidently endeavoured to "tell all he knows" on the subject, even at the risk of approaching prolixity. All who are desirous of having sound information on Tomato culture in a space of seventy pages cannot do better than obtain this Manual; and if they adopt intelligently the practice detailed they will achieve success in the culture of a fruit which is so rapidly rising in public estimation.

— THE "Journal of Applied Science" has the following note upon FRUIT TREES IN BOHEMIA—"According to recently published statistics the number of fruit trees in Bohemia of all sorts, but chiefly Apples, appears to be 14,000,000. Of these 10,000,000 are in gardens, 1,600,000 in waste lands, and about 2,000,000 on the sides of the public roads. The number of young trees annually planted is about 1,500,000. Between 6,000 and 7,000 miles of road are planted with fruit trees, mostly of the best sorts, and the revenue therefrom is very large. The fruit is largely exported to the north of Germany and Russia."

— THE members of the LIVERPOOL HORTICULTURAL ASSOCIATION are to be congratulated on the condition of a Society which, although only two years old, appears to be established on a substantial basis. With such distinguished patrons as the Earls of Derby, Sefton, and Dalhousie, with the Mayor as President and an influential list of Vice-Presidents, with nearly three hundred honorary members and a still greater number of ordinary members, including nearly all the gardeners of the district, with a practical working Committee, the prospects of the Society are bright, and with unity of effort and the support that an excellent organisation demands the objects sought will be attained. These are, as stated in the report, to promote public interest in, and the practice of scientific horticulture in Liverpool and the district, and afford the members opportunities of becoming mutually acquainted, and of profiting by each other's knowledge and experience by the reading of papers on the subjects which interest them, and holding exhibitions to enable them to compare the results of their knowledge and skill with those of the members of other societies and of gardeners from other districts. The income of the Society last year was £1118 16s. 3d.; and although, in consequence of inclement weather, a loss of nearly £80 was incurred at the autumn show, yet there is a balance of income in favour of the Society of £234 8s. 10d., which is a considerable increase on that of the previous year, and indicates judicious management on the part of the officials.

— A PARAGRAPH was sent to us last week which we published on page 132, directing attention to Mr. Shirley Hibberd's *SYNOPTICAL LIST OF VARIETIES OF POTATOES*. The list, which is the result of "severe selection" includes 313 varieties. Such a list will perplex at least as much as it will aid the majority of Potato cultivators, and our friend may well have another "melting down" day, for it is conceivable that not half the above number of varieties are needed either by growers of Potatoes for exhibition or culinary purposes. Short classified lists of Potatoes in the different sections would be useful, and especially so would an accurate list of synonyms. We think a "severely selected" list should only include varieties of merit, yet the first named in the selection in question (*Acme*) is described as a "coarse and worthless American variety," and several others are referred to in similar terms. No doubt this is useful information, but why include such varieties at all? We hope Mr. Hibberd will pursue the subject of selection and elimination further, for we agree with him that "it is surely time we had some good Potatoes," and we shall arrive at this desideratum the sooner by excluding all the bad ones. The Potato exhibitions have done much good



in promoting superior culture, but they have also stimulated the production of varieties of no practical use. If a new Grape, Pear, Melon, or Cucumber is not fit to eat it is not worthy of culture, however good the appearance may be, and the same rule we presume should apply to Potatoes.

— WE have received a schedule of the MANCHESTER NATIONAL SUMMER EXHIBITION, which is announced to be held from the 3rd to the 10th of June of the present year. Fifty-one classes are enumerated in two sections, thirty-two being devoted to amateurs and nineteen to nurserymen. Liberal prizes are offered for fruit, flowers, and plants, Orchids being particularly well provided for, as no less than eight classes are devoted to them. One special class is noteworthy; Henry Shaw, Esq., of Buxton, offers the first two prizes, value £10 and £5, and the Society gives the third prize of £3 for six specimen Orchids—single plants—"made up" specimens being excluded.

— RELATIVE to exhibiting plants at the meetings of the ROYAL HORTICULTURAL SOCIETY, South Kensington, the Rev. George Henslow requests us to publish the following letter that he has sent to many nurserymen and exhibitors:—

"I have noticed that certain plants—the particular merits of which may not be always apparent at first sight—are not unfrequently exhibited at South Kensington and brought before the Floral Committee, the members of which consequently feel some difficulty in judging of their merits for want of fuller information about them than can be obtained by mere inspection at the table. It has occurred to me that it might be an assistance to both exhibitor and the Committee if you would communicate to me in writing, a day or two before the Exhibition, such details of any particular plants as you may desire to be specially brought to the notice of the Floral Committee. I should be most happy, in my capacity as 'Demonstrator,' to describe such particulars to the members as you might furnish me with. By adopting this plan I think the Committee would be better able to judge of the merits of any such plants. I also wish to say that if you should happen to meet with any herb, shrub, or tree which exhibits remarkable growths, diseases, sports, &c., or, in fact, anything whatever that may strike you as peculiar, I shall be extremely obliged if you would kindly forward the same, addressed to me as 'Secretary of the Scientific Committee, care of Mr. J. D. Dick,' with the addition of any notes or observations which you may think fit to make. I shall have great pleasure in bringing the same before the notice of the Scientific Committee."

It would certainly be of great advantage if a request so reasonable were, as far as possible, complied with by all exhibitors.

— WE understand that our correspondent Mr. A. Pettigrew has disposed of the PRIORY VINEYARD, Sale, Cheshire, to Messrs. F. W. & H. Stansfield of Pontefract. Mr. Pettigrew intends residing in Scotland for a short time with the object of recruiting his health, and he proposes taking his bees with him.

— MR. PETER HENDERSON, writing in the "American Gardener's Monthly," has the following remarks upon ENGLISH HORTICULTURISTS:—"It has been stated that one reason why vegetables sell higher in London than in New York is that rents are higher, and quotes £7 (35 dollars) per acre as being paid for gardens supplying the London market. The price paid as rent per acre for the gardens that grow for New York markets will, I think, average higher. In Hudson Co., N. J., the average is probably 40 dollars per acre. Some of them nearest the city pay twice that, and that, too, in quite a number of cases only from year to year, as the grounds are held as too valuable to give a lease; and yet not a few of them have made good-sized fortunes, even when selling in a market averaging 25 per cent. less than that of London, while the price paid for labour was 50 per cent. more. By far the most successful market gardeners in this vicinity are Englishmen; but Englishmen whose necessities on coming here forced them to adopt common sense methods; Englishmen who were shrewd enough to take a better idea than that they had previously had from any man, whether black or white; Englishmen who were far too sensible to let their conceit stand in the way of their interests. Englishmen, also, in the vicinity of New York in the flower department of horticulture have reason to be proud of their eminence. A majority of those managing the roseries at Madison, N. J., where Roses are perhaps better handled than in any part of this country or Europe, are

Englishmen. The proprietors of the best collection of plants for commercial purposes are all Englishmen. Our largest grower of winter flowers is an Englishman—one who a few years ago, on his return from a European trip, was so impressed with the slow methods in use there, that he said that, had he been a younger man, he would want no better field for business than London after his ten years of American experience."

— Two interesting papers on THE COFFEE LEAF DISEASE were read at the meeting of the Linnean Society on the 3rd inst., the one treating of its ravages in India, the other its nature and spread in South America. In the first Mr. Wm. Bidie, in a letter to Mr. J. Cameron of Bangalore, refers to the Coorg country, situated in the Western Ghats, where European enterprise in Coffee has been wholly developed within the last twenty-five years, and no disease was observed till four or five years ago. The author mentions that the disease appears to have been imported from Ceylon by way of Chickmoorloor, a district of Mysore, sixty miles distant from Coorg. It seems worst in impoverished exposed fields, and least where there is shade and rich soil. A small red insect has been noticed feeding over leaves covered with the pest, but what the insect's relation is to the disease as yet remains undetermined. Plants grown from Ceylon seed suffer most, while those trees of Coorg origin and growth are least affected. A system of "renovation-pitting" has been successfully tried, a pit being dug at short intervals wherein, after judicious pruning, all the affected leaves are buried, and this precaution seems to check the spread of the disease, particularly among the Coorg Coffee trees. In the second communication Dr. M. C. Cooke describes and summarises all the data extant up to the present time of the progress of Coffee disease in South America. Plantations in Venezuela, Costa Rica, Bogota, Caracas, and Jamaica have been affected. He discourses on the nature of the blight, and is of opinion that the disease is a complicated one, being himself as yet unprepared to affirm that either the Septoria, the Sphaerella, or the Stilbum, three so-called different kinds of fungi, or all together, is the true cause of the disease. At the same time he thinks it possible that none of these forms of fungus are autonomous, and that all may be related to each other as forms or conditions of the same fungus, of which Sphaerella is the highest and most perfect manifestation.—(*Nature*.)

— MR. J. S. WOODWARD recommends in the *New York Tribune* the following wash as a sure preventive of SHEEP BARKING FRUIT TREES. Take soap, the dirtier and stronger the better, and make a very strong suds; dissolve one-fourth pound whale-oil soap in every six gallons, and into this stir sheep manure until it is as thick as good whitewash, with a brush or old stub of broom, and with this mixture wash the trees as high as the sheep can reach, and no sheep will come near enough to rub against them for at least two months, the time depending upon the amount of rain. We keep the mixture handy and repeat the application as often as necessary, usually not more than twice in a summer. Sheep running among fruit trees should have plenty of good fresh water; it is thirst that first induces them to gnaw the bark, but after they have once got a taste they eat because they like the bark. The above mixture will effectually keep them away, and besides is a very good application for the health of the trees, keeping the bark smooth and fine, and killing any insects that it comes in contact with.

#### PARAFFIN TUBS.

As I have seen these recommended for large plants that have outgrown their pot room, could any of your numerous readers that have used such inform me what operation the tubs have gone through preparatory to using them? as I apprehend that, if used as bought, the oil in the wood would kill the young roots of such plants as Tree Ferns and Palms. Would a thorough scalding with



boiling water so cleanse them as to render them fit for use? The subject may be of a little importance to some gardeners, as these tubs may often be bought cheaply, and one of them if sawn in halves would do for two plants.

Whilst writing about tubs I may state that spirit tubs, at all events those that have contained rum, are very destructive to the roots without previous scalding with boiling water. Some twelve years ago, when under gardener, I was directed by my employer to put a fine young plant of *Cyathea princeps* into a small tub about 2 feet in diameter, and about the same in depth. The tub had contained rum, and was not scalded before using it; the consequence was that when the roots reached the sides the young pinnules on the fronds drooped and turned brown, the older ones soon assumed the same appearance, and the plant appeared to be dying. It was placed on the ground, and two men with a four-tined steel fork each raised it bodily out, it was then found that the extremities of the roots that had reached the sides of the tub were all dead. The tub was then well scalded, some of the soil was picked away carefully from the ball to enable the plant to be returned to its former position and then filled up. It soon recovered and never showed the same symptoms as before, but grew rapidly in a shaded stove, and made a fine specimen. This *Cyathea* is one of the most handsome Tree Ferns, and is especially suitable for a large house.

I have a large paraffin tub that has been in use four or five years. It has had boiling water in it a great many times, and has often been used for washing flower pots, but even now after four or five years of such use, small quantities of oil may be occasionally seen floating on the water.—A. HARDING.

#### ANGRÆCUMS.

A WIDE range of floral variation is one of the striking characteristics of the great Orchid family, and yet many of the genera are clearly marked and easily distinguished even by non-botanical observers. Some genera, however, contain species differing very greatly among themselves in the form and colour of the perianth, though in other structural characters they are closely allied. Among the first-named the *Angræcums* may be included, for they bear a strong family likeness in general appearance and colour, yet with sufficient diversity in the size of the flowers and in the form of the inflorescence to render them all more or less attractive. With the exception of a few species they cannot, however, be ranked among the really useful Orchids which everyone may grow—not from any great difficulties attending their culture, or from deficiency of interest, but because where the object is to provide a brilliant display in the Orchid house there are many others better suited for the purpose easily procurable, and requiring less heat than the majority of species constituting the genus under consideration. A marked uniformity of colour prevails in the *Angræcums*; from pure white to creamy yellow is the extreme range of tints, and the charming elegance of some species with delicate flowers, long slender spurs, and gracefully arching racemes, or the stateliness of the strong-growing forms with large flowers, can scarcely compensate for what appears to some as a defect. Possibly this is the reason we seldom find a good collection of the species in one garden, though a large number of forms are included in the genus, and many have been introduced to cultivation. In some of the largest collections there is not a dozen species, though the nurserymen of this country offer about twenty, and probably nearly thirty are now represented, some being extremely rare. It is seldom, however, that a collection of Orchids, even of moderate size, is without at least one or two representatives of the genus, and many more might be advantageously grown wherever there is sufficient accommodation for them.

The genus *Angræcum* was established in 1822 by Aubert du Petit Thouars, to include certain species of epiphytal Orchids found in East and West Tropical Africa, Madagascar, and the adjacent islands, and in a work published by that botanist several of the species now in cultivation were described. It was then believed that the geographical range of the genus was very limited, but species have since been found in Japan and the West Indies. Their headquarters are Western Tropical Africa, from Sierra Leone to the River Gaboon, the opposite side of the great continent about Zanzibar, in Madagascar, the Comoro Islands, Bourbon, and Mauritius. They are essentially heat and moisture-loving Orchids, and with the exception of the Japanese *Angræcum falcatum* they need the warmest compartment of the structure devoted to such plants. Being epiphytal in habit the majority require to be grown in baskets or on blocks of wood; but those of vigorous habit, such as *A. eburneum* and *A. sesquipedale*, are usually grown in pots with abundance of potsherds as

drainage, 'good fibrous peat and sphagnum, or the latter alone, that moss [also being employed when the small forms are grown in baskets or on blocks. As with all Orchids of similar habit and from similar climates, abundance of water is required during growth, and a less amount when at rest; in other respects they may be treated like most of their allies. A few descriptive notes upon the best of the species may be of interest, and will serve to indicate the chief characteristics of the genus.

*A. sesquipedale*.—One of the most remarkable Orchids known, and having the largest flowers in the order, it is also unquestionably the most handsome in its genus. Such qualities entitle it to some consideration, and several points in its history are also invested with peculiar interest. It is, perhaps, the best known of the *Angræcums*, for it is found in the majority of moderately large collections of Orchids; and very deservedly is it so popular, for the vigorous habit of the plant, the dark green distichous leaves, and the great ivory white flowers render it worthy the attention of all growers. In the ordinary type of the species the flowers are about 6 to 8 inches in diameter, the spreading sepals and petals imparting a star-like appearance to them, and the spurs are from 10 inches to 1 foot in length. Messrs. Veitch have a grand variety, which is, I believe, named *superbum*. It is greatly superior to the ordinary form both in the size of the flowers and the purity of the white. In both the flowers are borne on a moderately short peduncle, and are arranged in a racemose manner but widely spreading. They are produced during the winter months, and last in good condition for several weeks, the sweet Lily-like fragrance which the blooms possess rendering them additionally attractive, and a single specimen upon the stages of an Orchid house will fill the whole structure with perfume.

This species was one of those known to Du Petit Thouars in 1822, but it was about thirty-four years later when living plants were first brought to England by the Rev. W. Ellis, who found it in 1854 growing on the branches of trees on the margins of forests in the low and hot districts of Madagascar. A few years later a plant produced flowers at that traveller's residence, Hoddesden, when the plant attracted much attention owing to the peculiarity of its structure. Since that time it has been generally distributed; and on December the 10th, 1861, Messrs. Veitch & Sons exhibited a specimen at a meeting of the Royal Horticultural Society, when a first-class certificate was awarded for it. As regards the structure of this Orchid the chief peculiarity is the extremely long spur, which, though rarely exceeding a foot in length in cultivation, is said to attain 1½ foot in its native habitats, and from that character the specific name is derived. This unusual length is supposed to be an adaptation in connection with the fertilisation, and in Mr. C. Darwin's work on Orchids he lucidly described the mode by which this can be accomplished. He considered from an elaborate examination of the structure that only large insects with probosces long enough to reach to the bottom of the spur where the nectar is secreted could effect the fertilisation, and he thence concluded that some kind of insect, probably moths, existed with probosces large enough for the purpose, though at that time one was not known to possess the organ of such a size. A species of *Sphinx* has been subsequently found in Brazil with a proboscis nearly a foot long, so that the probability of similar species existing in Madagascar is increased, but I am not aware that one has yet been found there. Mr. Darwin's observations have thus received a partial confirmation, and no doubt will at some time be proved to be quite correct.

*A. eburneum*.—This is another of the strong-growing species, but not so remarkable as the one just described, though from its free-flowering habit it is one of useful *Angræcums*, especially as the flowers are produced at a time when the Orchid house is comparatively dull—namely, from December to February. Grown in pots as already mentioned excellent results are obtained, and during the last few months several unusually fine specimens in some of the chief London nurseries, Kew, and elsewhere have been noted in the Journal. The plant is of robust habit with long leaves arranged in a similar manner to those of *A. sesquipedale*, and it bears numerous erect spikes or racemes of large flowers, of which the roundish pure white lip forms the most conspicuous portion, the sepals and petals being narrow and of a greenish tint. Two varieties are known—one named *virens*, which has smaller and less handsome flowers than the species, but is rather more graceful in habit. Another, named *superbum*, is decidedly superior to the type in the size of the flowers, and is said to be one of the introductions of the Rev. W. Ellis. Of this variety a remarkably handsome specimen was grown a few years ago at Farnham Castle by Mr. Lawrence, and I recently noticed a very good example in Mr. B. S. Williams' nursery at Holloway.

The species is native of Madagascar, where it was found by

Mr. Forbes a few years previous to 1830. It was also found in the Isle of Bourbon by another traveller. Specimens were introduced to the Horticultural Society's Gardens, where one flowered in November, 1831, from which a figure was prepared for the "Botanical Register," where it is stated that it was believed the

specimen was the only one in the country. Twenty years later a much better figure was published in the "Botanical Magazine," prepared from a plant at Kew which had been received from Mr. Clowes.

*A. citratum*.—This is very distinct in habit from *A. sesquipedale*



Fig. 33.—ANGRÆCUM CITRATUM.

and *A. eburneum*, but in gracefulness and beauty it is scarcely surpassed in the genus. The accompanying engraving admirably represents a plant growing in Messrs. J. Veitch & Sons' nursery, Chelsea, and proves how well the small Angraecums, like most other epiphytal Orchids, thrive in the small shallow pots so successfully employed in that establishment. The plant flowers freely, producing elegant pendulous racemes frequently a foot in length, with closely packed small creamy white or pale yellow flowers, which are nearly an inch in diameter, with spurs about  $1\frac{1}{2}$  inch long. The colour is very delicate, and it is to that the term "*citratum*" refers, and not to the possession of any marked fragrance as some have supposed. It is a charming little Orchid, and when suspended from the roof of an Orchid house its arching racemes are seen to the best advantage in contrast with the deep green foliage of the plant, and the rich colour of some *Dendrobies*, the glowing little *Sophranitis*, and the showy *Ada aurantiaca*, most of which were noticeable near the species figured, the two former succeeding equally well in the small pans or pots mentioned.

Though *A. citratum* has not been many years in cultivation it was known to Du Petit Thouars, who described it in the work already referred to. It is a native of Madagascar, whence Messrs. Veitch obtained it nearly twenty years ago, and in their nursery it first flowered in March, 1865. In the following year a specimen was exhibited at Kensington by the same firm in a class for new Orchids shown in flower for the first time, when a prize was awarded for it. In 1867 a very good coloured engraving of it appeared in the "Botanical Magazine," and on February the 18th, 1874, the Floral Committee of the Royal Horticultural Society

awarded Messrs. Veitch a first-class certificate for the plant. It unquestionably merits a place wherever elegant Orchids are appreciated.—L. CASTLE.

(To be continued.)

**DIMORPHIC FLOWERS IN HOUSTONIA.**—In an extract from the Proceedings of the Academy of Natural Sciences of Philadelphia Mr. Thomas Meehan has these remarks — "Flowers dimorphic in their sexual character are well known.

Generally there is little difference in the corolla between the short-styled and long-styled flowers, but in *Houstonia cærulea* the long-styled form is accompanied by a thick tube, while the tube in the short-styled form is not more than half the diameter of the other. In this species of *Houstonia* the anthers are placed on a ledge which is at the base of the tube in the long-styled form. In the short-styled form the anthers are brought to the mouth of the corolla without any lengthening of filaments, but by the bringing-up of this ledge on which the anthers are placed. The position of the anthers at the mouth or at the base of the tube, was in fact decided by the modification of the form of the corolla



tube. In a recent examination of *Houstonia serpyllifolia* on the top of Roan Mountain in North Carolina, precisely the same characters were found. On the same mountain *Houstonia purpurea* abounds, and also has a similar sexual dimorphism, but in this case the elevation of the anthers is due to the lengthening of the stamens, and the form of the corolla tube is the same in both sexual forms. The number of plants representing each sexual form is about equal. Both forms seemed to be equally fertile. In regard to cross-fertilisation the long-styled would be in the best position for receiving pollen from foreign flowers, but the short-styled one would more readily receive its own. As cross and self-fertilisation had an equal advantage he would infer that the dimorphism had little reference to fertilisation as a final cause."



#### HARDY FRUIT GARDEN.

For standard Apple and Pear trees that have attained sufficient size and age to bear fruit, but fail to do so, the present is a good time to head them down preparatory to grafting with other and approved varieties. Some kinds of Apples and Pears, particularly the latter, are liable to afford fruit of inferior quality, or the trees to be subject to disease in some localities, whilst in others they are satisfactory both in quantity and quality of the fruit. Scions of the required variety may now be taken, and the ends placed in the ground in a shaded situation to retard the action of the sap until it is well up in the stocks. Select vigorous well-ripened shoots of last year's growth for scions. Recently planted standard and other trees should be securely staked, and be well mulched with partially decayed stable manure. Bush fruits are now in that condition as regards the buds, particularly Gooseberries; and bullfinches must be watched for, or a pair will soon do a great amount of injury. Where shooting them is objected to the bushes may be dressed with diluted Fir tree oil or nicotine soap, which must be repeated after heavy rains. Pruning and nailing-in Morello Cherries and other trees on north walls must be attended to, cutting out any shoots devoid of bearing wood, so that last year's shoots can be trained in their full length. Cherries, Plums, Peaches, and Nectarines, being subject to the attacks of aphides, &c., should be dressed with an insecticide. We find nothing better than a mixture of 1 lb. soft soap to a gallon of water, half a gallon of tobacco juice, half a gill of spirits of turpentine, and a little sulphur to thicken it. It should be applied with a brush, and is equally efficacious against scale on Pear and Apple trees, also for American blight, in which case omit the sulphur.

#### FRUIT HOUSES.

*Cherry House.*—The flowers will now be rapidly expanding. Continue ventilating at 50°, and do not exceed 55° by artificial means in the daytime, and 40° to 45° at night. Cease syringing the trees, and maintain a genial atmosphere by damping. Artificial impregnation must be attended to on bright sunny days. See that there is no deficiency of moisture in the borders, and if necessary afford a liberal supply of water at a temperature of 65°. Trees in pots will require water more frequently, and must not be neglected in that respect. Although it is not advisable to fumigate when the trees are in blossom, it must, however, be resorted to if aphides appear.

*Peaches and Nectarines.*—Thinning the fruit will also soon require attention where too thickly set, removing the smallest first and all those on the under side of the branches, unless there be not sufficient on the upper side for a crop. Syringe the trees twice a day after the fruit is set, and advance the temperature to 55° at night, 60° to 65° in the daytime, ventilating from 65°, and allowing an advance to 70° or 75° with sun heat and a free circulation of air. Assist weakly trees with liquid manure not lower in temperature than the air of the house, and see that outside borders have the protection of leaves and litter to prevent chill. In the house started at the beginning of the present month the flowers are now showing colour, and the syringings must be discontinued when they expand, damping the house, floors, and borders

twice a day. See that the inside border is not dry, and if necessary supply water at a temperature of 70° to 75°, assisting weakly trees with liquid manure. Where there is a superabundance of flowers draw the hand on the under side of the shoots downwards. If Peach aphides infect the shoots fumigate on two or three consecutive evenings before the flowers expand. When in flower 50° at night and 55° by day artificially, advancing to 65° from sun heat, are suitable temperatures, ventilating freely whenever the weather is favourable, and avoiding a close vitiated atmosphere. Complete the pruning, dressing, and training of the trees in late houses, as well as cleansing the houses, ventilating freely to retard the flowering, unless the demand be continuous, when it may be necessary to start another house at the commencement of next month; in which case the house should now be closed, employing fire heat only to exclude frost. The inside border must be thoroughly moist.

*Strawberries in Pots.*—Batches of plants should be introduced at such intervals as will maintain an uninterrupted succession. The plants started in December have fruit well advanced for ripening, and should be supplied with liquid manure until the fruit changes colour. As soon as indications of ripening are evident the supply of water should be less plentiful, and the atmosphere must be drier to insure flavour in the fruit. Those plants started early in the year are in flower, and should have a somewhat dry atmosphere and as free ventilation as possible. Dust over the blossoms with a camel's hair brush or feather to liberate the pollen, keeping them in a temperature of 55° at night, and 60° to 65° artificially by day, with an advance of 5° to 10° with sun heat. When the fruit is swelling freely secure a temperature of 60° to 65° at night, and 70° to 75° by day, and 80° to 85° from sun heat. Supply liquid manure abundantly. When the fruits are fairly set remove those not likely to swell to a good size, and such as are likely to be deformed. Plants on shelves in Peach houses and vineries will have to conform more or less to the legitimate occupants, but the flowers of the Strawberries should be damped as little as possible, and a little extra ventilation afforded so as to secure a good set. Vicomtesse Hericart de Thury is not succeeding so well in the early crops as last year, but La Grosse Sucrée and Pioneer are fine. Those should be continued introduced to shelves in vineries or Peach houses about to be started, with President, James Veitch, Sir Charles Napier, British Queen, Dr. Hogg, and Cockscomb, the three last being very much superior in flavour to the others, and should be allowed to advance very gradually.

#### FLOWER GARDEN.

Shrubberies are often very much neglected in thinning. Common and Portugal Laurels bear cutting well, and may be formed by judicious pruning into fine pyramid or round-headed bushes, and Yews may be cut into any form desired. The majority of deciduous and evergreen shrubs also stand as much cutting as is necessary to keep them within reasonable limits. The ground amongst shrubs should be only lightly pointed over, and even this is undesirable where quantities of Snowdrops, Crocuses, Scillas, Daffodils, Primroses, Violets, and Anemones are planted amongst them. Dielytras, herbaceous Pæonies, &c., with Lilliums in the more open spaces have a fine effect. All that is necessary is to remove coarse weeds and grasses, and to give a top-dressing of decayed refuse occasionally.

Wistarias, Roses, Clematis, and all climbing plants should be pruned and have the growth re-arranged or regulated, cutting out the weakest and oldest growth, retaining for tying or nailing-in the strongest and best-ripened wood. Roses that make long strong growths, as Cloth of Gold, Climbing Devoniensis, Maréchal Niel, &c., should not be spurred in, but have the old growths well thinned out and the best ripened shoots trained in their full length, except any unripe points, which may be cut away. Proceed with the re-arrangement of herbaceous borders. Phloxes will be starting and should have the shoots well thinned, leaving the strong; but if the plants are old take up, divide, and replant them in well-manured ground. Cuttings of choice kinds now inserted and grown on will afford fine heads of flowers, and are very effective grown in pots for decorative purposes. Delphiniums and Pyrethrums that are growing should be closely watched, as slugs are very fond of them. Give a dusting of quicklime. Ground intended to be planted with Dahlias, Holly-



hocks, Violas, Calceolarias, and other plants requiring rich deep soil, should be prepared by trenching and working in a liberal quantity of manure. Edgings of Cerastium and other hardy plants may now be taken up and relaid.

Pelargoniums should be potted and afforded gentle heat for a short time; they will soon become established and make fine plants. Asters, Ten-week Stocks, Phlox Drummondii, Dwarf Scabions, and other half-hardy annuals may now be sown in pans of light rich soil in gentle heat, keeping them near the glass after the plants appear, ventilating freely on all favourable occasions. Push forward the propagation of bedding plants whenever cuttings are to be obtained. Verbenas and Lobelias when struck should be planted out in pits or frames.

## THE BEE-KEEPER.

### CRUDE HONEY.

NOBODY doubts that there is such a thing as "crude," as distinct from perfect honey, if it be meant that the honey which is sealed up by bees and is stored up for winter use differs greatly in most seasons, and at different times in the same season, from that which they bring in daily and hour by hour from our fields and woods. We do not, therefore, question a great deal that Mr. Pettigrew says upon this subject. We know well all the "facts" that he has advanced. Bees do put honey among the brood at first. They do not always carry it to the store combs at once. The supers do undoubtedly increase in weight by night as well as by day. All this is among the A B C of our knowledge about honey gathering and storing. The answer to Mr. Pettigrew's questions in your last issue is simple enough. Bees, being among the most intelligent of insects, know how to husband their time and arrange their hours of labour so as to utilise to the utmost every available minute that is given them; consequently, as they know the brevity of the honey-producing hours, they wisely give their chief attention to the collecting of it when it is to be had, and as naturally they put it into the cells which happen to be most conveniently at hand and nearest to the one entrance of the hive. Then they rush forth again to collect more, and repeat the operation till the shades of evening or exhaustion of the outdoor supplies gives them liberty to attend to the proper storage of the honey harvest so hurriedly gathered in. Now comes the night-work, which is often as laborious as that by day. The honey is carried drop by drop to the suitable receptacles which have been prepared for it in the store combs of the hive wherever these may be, in supers or elsewhere. We are also perfectly aware that a great change often takes place in the quality of the honey itself—often we say, for the change depends very much upon the varying quality of the honey which is being brought in from the fields. Sometimes, especially in wet or moist seasons, when there is little sun, the honey is thin and watery; at other times, and particularly last summer, it is brought in as "perfect" a sample as the best affords in other years. But, perhaps ordinarily, the change is very considerable which takes place during the time the crude honey is brought in, while it remains in the open cells, and during the time of transfer before it is sealed up.

Where we differ from Mr. Pettigrew is as to his way of accounting for this change. He talks of the bees "converting" the crude syrup into honey, and he asks us to believe that in the process of transfer there takes place a "manufacture of perfect honey;" and by this he means, not a mere change of appearance or improvement in quality, but a radical conversion of one substance into another. The former is fact; the latter we maintain is, if not fiction, at least "not proven." Mr. Pettigrew has not yet furnished us with any evidence of this alleged fact. Nor do we see how in the nature of things it can possibly be proved; for such a fact would simply mean that bees have a fund or store of saccharine matter in their stomachs, which, like the "doctor" with which, as is alleged, wine merchants improve their poorer wines, bees supply the defect of quality in the sweet syrup they collect from the flowers, and manufacture "the perfect honey" of which Mr. Pettigrew speaks.

Well, but how do we account for the change? We reply that it seems to be the most easily accountable thing in the world. We are fully convinced that evaporation is the chief and perhaps the sole factor in the business, although it is of course possible that the bees may themselves reject a good deal of the honey they have too hurriedly collected (not that we hold such an opinion) during the excitement of the period of glut, and there may be

(probably there is) some chemical change perpetually going on owing to the high temperature of the hive, which affects the consistency of the honey and even its quality. But this is very different from Mr. Pettigrew's contention.

We maintain that the great heat of the hive is quite sufficient to account for the change we speak of, whether it be chemically or otherwise affected by it. The evaporation which goes on in a temperature often approaching to 100° Fahrenheit must be enormous. Hence the watery element in the crude honey is largely diminished in a very short time, while the saccharine matter is left greatly predominant. We are satisfied with the reasonableness of this explanation, which has often been given in these pages by close observers of the honey bee.—THE WRITER OF THE REVIEW OF "HANDY BOOK ON BEES."

### ANNUAL MEETING OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

THE annual meeting of this useful Society took place at the National Chamber of Trade, 446, Strand, on the 16th inst. In the absence of the President, the Baroness Burdett-Coutts, Mr. T. W. Cowan occupied the chair. An admirably drawn-up report, which has been previously circulated, was taken as read, put from the chair, and unanimously adopted. Votes of thanks to the retiring officers and Committee, proposed by Mr. Littleboy and seconded by Bishop Tozer, and to the Council of the Royal Society for the Prevention of Cruelty to Animals, proposed by Mr. Cheshire and seconded by the Rev. G. Raynor, followed.

After the election, which was in every case a re-election of officers, the result of the voting for the Committee was declared. Mr. T. W. Cowan, 195; Rev. G. Raynor, 188; Mr. F. R. Cheshire, 181; Rev. E. Bartrum, 180; Mr. J. Hooker, 175; Dr. L. Beale, 172; Mr. C. Abbott, 143; Mr. Whealer, 98; and Mr. Jonas, 96. The last two are new members. The Secretary now sketched some plans of operation in connection with agricultural and horticultural societies, which will in itself prevent the Committee of 1881 from being idle. Some small changes were made in the rules, the most important being an alteration of the date from which subscriptions shall commence, this being formerly May 1st, but now made January 1st. Upon this matter the decision was not by any means unanimous. Mr. Lyon proposed to the Committee the offering of prizes for improved methods of packing honey; and the Rev. E. Sisson suggested that amateur classes should be created, as the amateur had no chance with the professional bee-keeper and hive-maker, and that amateur hive-making should be encouraged by special prizes. Mr. Cheshire remarked that careful observation had convinced him that in honey classes the amateur has nothing to fear from the professional bee-keeper and hive-maker, who was almost always in matters of honey conspicuous by his failure, but that he thought the suggestion with regard to hives was a very good one.

After tea and coffee the quarterly conversazione took place, when Mr. Lyon read a paper on

#### CHEAP BAR-FRAME HIVES FOR COTTAGERS' USE.

Bishop Tozer, who was voted to the chair, introduced Mr. Lyon with some gracious remarks upon the pleasure he felt at being present. Mr. Lyon first drew attention to the difficulty of introducing the frame hive on account of its cost, referring to a list of a Scotch firm in which the lowest price quoted is 5s. for a complete hive containing eight frames Woodbury size with a roof; adding that the customers of hive-makers are with rare exceptions clergymen, gentlemen of means, well-to-do tradesmen, and others who can well afford an outlay of a few shillings for each hive, but that the price even when reduced as much as competition can reduce it is for the poor cottager prohibitive. He suggested bought boxes as a remedy, remarking, "As we cannot with the means and tools at our disposal make our boxes, we must look about for some which have already served the purpose for which they were made, and can therefore be sold for less than the cost of making. The very essence of the bar-frame system is the complete interchangeability of the frames. Every frame in every hive in our apiary should be interchangeable with every other frame. It is therefore necessary in the selection of our boxes that they should be always without difficulty obtainable of uniform size and shape.

"In looking about for suitable boxes I have tried wine cases, brandy cases, and milk cases, all of which are too shallow. Milk cases, however, make very good super covers or roofs. The cases in which preserved meat is imported are very good and strong, but unfortunately each packer uses a slightly different shape. The only boxes I have found to be always uniform are lobster boxes—i.e., boxes in which preserved lobster in tins has been imported. These boxes are 18½ long, 12¼ wide, and 9 deep, well made of good wood planed outside, 1 inch thick at the ends and full half an inch at the side; they have a lid and a bottom, and cost 3d. or 4d. each. Of all the various shapes and sizes of hives which have been introduced the Woodbury having ten frames each 13½ inches by 8½ inside measure, giving 1147½ superficial inches of comb when filled, has been found the most suitable for general use. The lobster box will carry twelve frames, each 11¼ by 8½ inside measure, which gives exactly 1147½ super inches of comb, the same as the Woodbury. Comparing the

size another way I turn to our Manual, page 18, and find a hive containing 2000 cubic inches mentioned as a desirable size. The lobster box contains 2039 cubic inches. There is another advantage which is not to be overlooked—viz., that the frames being only  $11\frac{1}{2}$  inches inside measure will be filled from side to side by any comb from an averaged sized skep except the outside ones, which, as they are nearly always store combs, are seldom transferred without piecing. I have here a hive or body box made from one of these boxes. The alighting board is made out of a piece of the lid, and so is the batten across the bottom. The strips at the ends are from waste in cutting the frames. As we cannot afford to pay for labour we must show our friend how to make his frames with little trouble and tolerable certainty that he cannot go wrong. We now require a tool which is not likely to be found in his possession—viz., a “cutting gauge,” cost 10d., and a bradawl, 2d. I have here a piece of best pine wood, it is “five-cut”—i.e., five cuts, giving six boards out of a plank 3 inches by 9. A plank costs in London 4s., and each cut 3d., making 5s. 3d. for 72 feet, or say 1d. per foot of five-cut board; perhaps it may cost a little more in the country, but not, I should suppose, more than  $1\frac{1}{2}$ d. per foot. Being unwilling to turn this room into a carpenter's shop I have cut it off to the proper length—viz., the width of the body box outside. I lay it on the hive and with a pencil mark along both sides thus,\* and then mark off a quarter inch inside this line on each end. I now set my gauge to  $1\frac{1}{2}$  inch bare and cut off slips from my pine thus.† There is a reason for using pine—viz., it is free from knots and crooked grain, which would throw out the gauge. I now with my knife cut a notch at each end at the mark,‡ and set my gauge at a quarter inch. I cut out the two pieces,§ thus leaving the ends of the full width to form a shoulder, and our top bar is made. I now take another piece of pine already cut off half an inch less than the depth of the box, and setting my gauge to the width of the top bar I cut off strips to form the side pieces. The pieces§ which came out of the top bar will form the bottom rail. Before nailing together, however, we must provide for the preservation of the quarter-inch space §§; this I do by making a hole with my bradawl diagonally outwards from the marks (which show the width of the inside of the hive) through the top bar, and when nailed together driving a French nail through the hole into each of the side pieces. Here is a frame completed. You will observe that there is very little scope for propolis, as there is no step or rebate on the under side, and no part of the shoulder projects inside the wall of the hive. The quilt or covering for the frames may be any old material; a few darns and patches will not affect its usefulness, and for additional warmth in winter a bag of chaff or of bruised and dried ferns will do. I have bought at a rag-shop a lot of old carpet at 1d. per lb. which answered capitally. The division board is made of part of one of the lids, the roof is formed of another lobster box with fillets cut from the lid nailed round to keep out the weather.



Fig. 34.—A, B, The points at which the notches are made by the knife. The part between A and B is removed by the cutting gauge, and so the top bar of the frame is formed. The shoulders are left of about true size, but the length of the bar has been much reduced for the sake of convenience.

“The hive is now complete with the exception of the supers. As to these I think it best not to attempt too much at first. Let us get bar-frame hives adopted if we can. Let us show the cottager how he can obtain a bar-frame hive at less than the cost of his favourite skep, and when the long time the former lasts is considered it will be far cheaper and he will be willing to adopt it. You notice that I place the door at one end and the frames across the hive, so that the greater part of the honey will be stored at the back with a fair chance of its being uncontaminated by brood, and with the certainty of its being taken without destroying the bees—a vast step in advance. I will now reckon the cost. We have two boxes at 3d., or say 4d. each, 8d.; one (5-cut) pine board cost 1s., but it makes frames for two hives; cost for one hive, 6d.; nails, pitch, and paper not more than 4d.; total, 1s. 6d. Then the cutting gauge will cost 10d., but this is plant. I reckon nothing for materials for quilt, as any old clothes which would be burnt or thrown away will do; nor do I reckon anything for the stand, as this must be provided for a skep (indeed a skep requires a floorboard, and our 1s. 6d. hive has one). Four stakes driven into the ground make a fair stand. This small sum of 1s. 6d. need not be expended all at once; one week a box may be bought, another the board, another a second box, and so on as the cottager can spare a few pence.”

NOTE.—Regard to space has forced us to excise some of the less essential portions of this paper, while the lengthy and interesting discussion which followed will appear in a future issue.

\* The mark was made on the under side of the board and against the top edge of the body box.

† The gauge was made to cut into the stuff from each face when the slip  $1\frac{1}{2}$  inch wide was broken off.

‡ The pencil mark previously made.

§ The pieces between A and B (fig. 34).

§§ The quarter-inch space between the side of the hive and the side of the frame, essential to prevent the bees fixing by propolis.

## TRADE CATALOGUES RECEIVED.

King & Co., Avenue Road, Woodford, E.—*List of Vegetable and Flower Seeds.*

A. J. Main & Co., Queen Victoria Street, London.—*Illustrated Catalogue of Iron Roofing and Shedding.*



**Books (A Reader).**—Concise cultural notes on the plants you name, and many others, are included in our “Greenhouse Manual,” which you can have from this office post free, price 10d. Reliable articles on some of the plants you mention are contained in Carters’ “Practical Gardener,” the price of which you will find in our advertising columns. You cannot err by obtaining both of these books.

**Vegetable Trials (D. McD.).**—No systematic reports of the trials of Brussels Sprouts and Parsnips at Chiswick have been published, but you will find a note on the vegetables grown there in 1880 on page 461 of our last volume. If we can obtain information on the other question you have asked it shall be published.

**Showing Peas (J. S.).**—You have permitted an extraordinary length of time to elapse before asking to correct what you deem a mistake. We shall be glad to have some particulars of the variety you mention, and to know your name and address, which you have failed to send, and your letter shall have our attention.

**Stephanotis Unhealthy (C. S.).**—Your plant has sustained a severe check by the excessive cold of the winter, the temperature you name having been often  $10^{\circ}$  too low for maintaining the plant in a fresh healthy state. You have done quite right by endeavouring to stimulate root-action, and if you provide a warm genial temperature to promote fresh growth the plant may recover its lost vigour. We are unable to suggest any other means for its renovation.

**Blood Manure (Idem).**—We know of no better mode than that given in the receipt to which you refer; but probably the quantity of acid may require to be increased. The blood should stand for a time, and only the coagulated portion be used. When prepared it may be used the same as guano, sprinkling it on the surface of the soil between the crops at the rate of an ounce or a little more to the square yard.

**Insects under Nut Trees (F. J.).**—These are mites belonging to the family Collembola, apparently *Smyntus fuscus*. Feeding upon decaying wood or the fungi which suddenly appear in damp weather, these insects congregate in vast numbers, and are sometimes called “ground fleas.” In this instance the species would probably do no harm, but some of the Collembola attack young plants in frames, such as the Cucumber, being usually carried in with manure.

**Pruning Holly Hedge (S. M. M.).**—Your hedge may be cut into the form desired at the present time. The knife is a much better implement than the shears for this work, but the process is necessarily much slower. When the shears are employed the leaves are severed, and the hedge has then an unsightly appearance for a long time. The leaves of Hollies and Laurels should never be cut, but the growths that are not required should be removed with a knife, the leaves that are left being uninjured. Early September is also a good time for trimming evergreen hedges. The tan may be spread thickly under the Gooseberry bushes when the buds commence swelling, or just before the leaves expand.

**Glazing Without Outside Putty (Several Correspondents).**—All the letters on this subject were forwarded to the writer who advocated the practice in our last volume, and his reply to them is published on another page of our present issue. When this mode of glazing is properly carried out we know it is good, as the roof is rendered perfectly watertight, and less cost is incurred in painting and repairs than when top putty is used. We know from experience that more labour is involved in stripping off old putty when the wet gets under it, and adding fresh, than in painting the roof.

**Fowls in Garden (J. Miller).**—Your proper mode of procedure is to give the owner of the birds a written notice that you will hold him responsible for the damage they do in your garden, and if he does not adopt means to keep them in his own enclosure you can eventually sue him in the County Court, and recover the amount of the loss you have sustained by the birds eating your Currants. You cannot legally destroy or injure the fowls.

**Cats Disfiguring Flower Beds (E. T. H.).**—We do not know a mode of preventing cats scratching in flower beds, but if the surface of the soil is kept wet it has less attractions for the animals. Some people in towns strew pepper on the flower beds where cats abound, and others sprinkle the soil lightly now and then with paraffin. If any of our readers can suggest a remedy for the evil in question we will readily publish it.

**Winter-flowering Plants for the Greenhouse (E. C.).**—The plants you mention are all useful for the purpose, especially the Libonias, which may be grown in large quantities. There is no difficulty in maintaining a good display of flowers in a greenhouse during winter if another structure is at command for advancing the plants in, but without that the list is necessarily limited. To forward in heat you may have a variety of bulbs, such as Hyacinths, Tulips, and Narcissuses, with early varieties of Azaleas, Lilac, *Orobis vernus*, *Justicia speciosa*, *Kalmia glauca* and *K. latifolia*, some *Rhododendrons*, especially the handsome hybrid Countess of Haddington. Plants that are indispensable for the greenhouse at such a time of year, and which come in early without any forcing, are *Helleborus niger*, which may be grown in pots or baskets, *Erica hyemalis*, *E. Wilmoreana*, *E. melanthera*, *Azalea amoena*, *Acacia platyptera*, *A. longifolia*, *Spartanilla africana*, *Primulas*, *Cincarias*, *Cyclamens*, and *Zonal Pelargoniums*.

**Plants to Flower in August (G. W. A.).**—To have the plants in flower at the particular date you mention they must be kept moderately dry and cool, giving careful attention in insuring thorough ripening of the wood before resting, and supplying abundance of water after starting them. The plants may be



started about the following times:—Allamanda Hendersoni in early April, Bougainvillea glabra and Clerodendron Thomsonae at the commencement of June, Stephanotis floribunda in May, and Rondeletia speciosa in April. Much care will be needed to have them all in good condition at the exact period you name, as some will probably start more quickly than the others, and you must then exercise your discretion in retarding them.

**Trees Injured by Rabbits** (*A Lady*).—Perhaps the simplest plan you can adopt is to secure some thick plasters of clay and fresh cow dung round the stems of the trees, and if the bark is not very much injured the wounds will heal. Old canvas will do for wrapping round the stems, and if this is dressed with tar or paraffin the rabbits will not touch it. Tar should not be applied to the stems of the trees, as so used it is often injurious. Liquid grafting wax is also a very useful application for covering wounds. It is of the consistency of varnish, and is applied very thinly with a brush. Care must be taken not to lay it on thickly, for the surface hardens so rapidly the alcohol is prevented from evaporating. Take of rosin, 1 lb.; beef tallow, 1 oz.; spirits of turpentine, 1 tablespoonful; alcohol (95 per cent.), 6 ozs. Place the rosin over a slow fire, when melted take it off and add the beef tallow, stirring it constantly; let it cool down somewhat, mix the spirits of turpentine little by little with it, and at last the alcohol in the same way. Should the alcohol be added while the mass is too hot much will be lost by rapid evaporation; if, on the contrary, it is too cool it will form a viscid lump, and must be slightly heated again. Stirring briskly is indispensable to mix the ingredients thoroughly. In well-corked bottles it keeps for years. If in course of time it becomes too thick the addition of some alcohol will make it liquid again. For this purpose it must always be warmed. It is a good plan to put the bottle containing it in boiling or hot water to accomplish this.

**The Auvergne Pea** (*W. B. Notts*).—The Auvergne Pea was introduced from France some years ago by the Royal Horticultural Society, but although it very far surpassed every other variety of White Pea then in cultivation, it never became widely known or generally cultivated. It is a most characteristic variety, and always easily distinguishable by its long and curved pod. The plant is of a moderately strong habit of growth, producing a single stem from 4 to 5 feet high, according to the soil in which it is grown, and bears from twelve to fifteen pods on each. The pods are sometimes produced in pairs; when fully grown they are 4½ inches long, and over half an inch broad, tapering towards the point and very much curved as shown in fig. 35; they contain from nine to twelve peas, which are very closely compressed, and are the size of the Early Frames. Even the small pods contain as many as from seven to nine peas in each. The ripe seed is white. It is a second early Pea, useful and productive, and it succeeds better in a dry soil and season than any variety we have grown. It much resembles Dickson's Favourite, but the plant is stronger than that variety, and a few days later. The Auvergne is synonymous with the White Scimitar and White Sabre, under which names it was grown many years ago.



Fig. 35.

**Seedling Azaleas** (*G. Russell*).—The flowers you sent are very beautiful and appear to be intermediate between the parents named—i.e., amœna, pollen parent, La Victoire, seed parent; and if the habit is, as you say, that of the former, the cross is a decided acquisition. Some of the flowers resemble La Victoire in colour, while in form they are like amœna but larger; in others the characters seem reversed. The hose-in-hose flowers are especially notable for their symmetry of form and distinct colour, which seems to possess a peculiar shade of purple, suffusing the salmon-pink hue that chiefly prevails. You have certainly been fortunate in obtaining this cross, which is quite in the way of those forms obtained by Mr. Carmichael a few years ago.

**Vegetables in India** (*X.*).—The remarks to which you refer occurred in the preface to the eighteenth volume of the *Cottage Gardener* in 1857, where it was stated that at one of the exhibitions of the Calcutta Horticultural Society the following vegetables were

exhibited:—Celery, Cabbage (Red Drumhead and Savoy), Spinach, Turnips, French Beans, Endive, Carrots, Lettuces, Red Beet, Artichokes, Potatoes, Tomatoes, Peas, Cauliflowers, and Watercresses, all of which it is added "would not have shamed a market gardener at Fulham."

**Amaryllis Culture** (*Tyro, Essex*).—The plants require abundant moisture and nourishment when growing, but after the foliage has attained its full size they require no more water than just sufficient to prevent the leaves flagging. Perfect drainage must be secured. Strong hazel or yellow loam free from iron, with a little sharp sand, is all they need in the way of soil. Leaf soil and other vegetable matter, which slowly decompose, are to be avoided. Too much heat when growing is injurious, as it causes drawn foliage and weakens the bulbs. They require as much heat when at rest as when growing; and though this may appear to some the reverse of good management, it is only what they receive in their native habitats. The roots remain on the bulbs throughout the year; taking them out of the pots when at rest, therefore, robs the bulbs of that which Nature has provided to collect food for the support of the scape of flowers. Deep, narrow pots, 8 inches in depth, and double the diameter of the bulb, are the best description to grow them in. Frequent potting and plenty of pot room is their bane, and potting a plant of this kind because the pot is full of roots will prevent its flowering. The pot never can be too full of roots, as the bulbs flower all the better for being cramped; and so long as the drainage is perfect and the soil sweet, it is immaterial how long the plants are kept in the same soil and pots, if only the offsets are removed and potted, thus preventing their exhausting the parent. Examine the pots at once, and see that the drainage is all right. Having made it perfect replace the ball in the pot, adding a little soil upon the drainage if the plant or bulb be too low,

and gently stir the surface of the soil around it; if any fresh soil be added it should be dry, and the bulb will be none the worse if it be covered to the neck. Some of the tender kinds decay; unless the bulbs are thus covered they are apt to decay at the base. In looking to the drainage and stirring the surface care should be taken not to injure a single root nor break the ball, for that is robbing the plant of so much absorbent surface, and is a direct way of weakening the bulbs. Place the pots on a shelf about 1 foot or from that to 18 inches from the glass, and if the temperature range from 55° to 60° it could not be better. The situation should be light and free from drip. No water must be given until the leaves appear, for the concentrated juices of the bulb are sufficient without the aid of water, when they must be slightly watered, gradually increasing the quantity as the leaves and scapes elongate. When the scape has risen 6 inches give a plentiful supply of water, and let every alternate watering be weak liquid manure, or, what is more safe for an amateur, 1 oz. of Peruvian guano dissolved in a gallon of rain water, and with this water the plant every other day, and the intervening day with pure water. All waterings to be applied a few degrees over rather than a few below the temperature of the house; enough to be given to run through the pot, and if it does not do this without having to stand on the surface, or is a long time in doing so, the soil is either dust-dry or sodden, or the drainage is choked. Examination being made, the defect, whatever it be, must be remedied at once. The leaves should not under any circumstances be suffered to flag at this stage, and the atmosphere must be kept moist by syringing night and morning every available evaporating surface with water of the same temperature as the house. Air should be given on all favourable opportunities, but cold currents must be studiously avoided.

**Names of Fruits** (*George Picker*).—No. 1, Golden Nonpareil; 2, Golden Pearmain; 3, Norfolk Bearer; 4, Winter Peach. (*J. Bakewell*).—1, Cannot be identified; 2, Boston Russet. (*R. Masters*).—1, D'Arcy Spice, called also Spring Ribston and Baddow Pippin; 2, cannot be identified. (*A. A. G.*).—We are unable to name your Apple; the specimen appears imperfect. Many Apples that have been sent have been so much injured by frost as to quite change or destroy their flavour, thus depriving us of one important test in identification.

#### COVENT GARDEN MARKET.—FEBRUARY 23.

TRADE keeps quiet, our market being bare with the exception of imported goods, large quantities of Canadian Apples still reaching us, but in unsatisfactory condition.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges .....	½ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	2 0 4 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples ....	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	0 0 0 0	Plums .....	½ sieve	0 0 0 0
Grapes .....	½ lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red .....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli .....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage .....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots .....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Cauliflowers .....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers .....	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 0
Celery .....	bundle	1 6 2 0	Rhubarb .....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	1 3 2 6	Scorzonera .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 3
Fennel .....	bunch	0 3 0 0	Shallots .....	½ lb.	0 3 0 0
Garlic .....	½ lb.	0 6 0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE COMPARATIVE ADVANTAGES OF FATTENING BULLOCKS AND SHEEP.

(Continued from page 141.)

PREVIOUS to our entering into any minute investigation of the cost and results of our method of feeding and fattening cattle and sheep we had always entertained the opinion, but it was not general at that time amongst farmers, that sheep stock barely paid for their keep, and that after we had charged the roots, &c., at feeding value we had only the manure left as compensation. We also supposed that the bullock-feeding was worse than sheep-feeding, because of the extra cost in the cartage of roots and manure returned to the land, and so it would prove no doubt were it not that the system of feeding exhibited by these com-



parisons had been carried out. The chief point to which we wish to call attention is the diminished quantity of cake used, and the fact of feeding with straw instead of hay; for instance, give 2 lbs. more cake per day, and a fair allowance of hay to each bullock, and the item now standing as profit would be lost without advantage in return. We contend that 4 lbs. of best linseed cake per day is as much as the stomach of the animal can assimilate and convert into meat advantageously, for we have found that hay clogs the stomach, as we have never known a straw-fed bullock refuse either roots or cake, which they frequently do with hay feeding. An objection is sometimes raised to bullock-feeding by stating that the land requires the tread of the sheep and the whole root crop consumed upon it, and this is true upon light and poor soils; but upon the mixed or dry friable loamy soils in good condition one-third at least of the root crop can be spared for bullock-feeding, the remaining two-thirds being fed off by sheep on the land with oilcake, or corn and hay. This will leave such soils quite rich enough to produce a full crop of Lent corn, and the roots removed for consumption by bullocks in their boxes will convert large quantities of straw into rich manure to be applied to other parts of the farm.

We wish here to draw a contrast between the effects of sheep manuring and box-made dung. It is well known to practical farmers that sheep in the winter months do not always manure the land regularly. For shelter in bad weather they often huddle together under hedges or on the lee side of the hurdles, and therefore drop their dung in excess in those parts, whereas other parts get little or none. Not so, however, with the box manure, for it can be applied at the discretion of the farmer upon those fields or parts of fields in such proportions as may be necessary. These observations do not apply with full force to stall feeding, because there is usually more or less waste of manure, arising from its exposure to drought or wet weather, and frequently by undue and excessive fermentation in the heap; but in box-made manure, when it is properly managed, there will be no loss, for when earth is placed at the bottom of the boxes the liquid manure is absorbed, and the accumulating mass of dung is always in a fit state for removal and application to the land, and can be allowed to remain in the box until required for use without loss. We wish also to observe that feeding sheep in the open field is often attended with losses consequent upon their exposure, &c., and we have also experienced severe losses from inflammatory disorders, also diarrhoea and epidemic lameness, foot rot, &c. On the other hand, we consider neat cattle kept under cover subject to but little loss generally. Although pleuropneumonia has in some instances prevailed, it is quite an exceptional disease, particularly among box-fed animals, and during our own experience we have scarcely ever lost a fattening bullock. It may probably be asked how boxes are to be obtained for cattle feeding upon farms in general. We reply, Take the barns as we have done for the purpose, let them be partitioned at a small expense with larch poles, and they will prove better accommodation than any buildings usually erected for the purpose of box-feeding. For further information upon accommodation for cattle we refer the home farmer to articles in this Journal under date of the 16th, 23rd, and 30th of September last.

Now threshing by steam prevails the corn and straw is better in stack than in barn, and nearly all the farms in the arable land districts have barns; they are therefore provided with the space for box-feeding a good number of fat bullocks. Mr. Lawes's experiments, as given in vol. xxii. of the "Journal of the Royal Agricultural Society," strongly support our experience, and upon which our calculations have been made—namely, that his bullocks show about the same gain or increased value, 16 lbs. of beef being the average increase per week, and yet it includes some animals which did not thrive, their gain being much below the average. Still we cannot ask the home farmer to expect results equal to our own or Mr. Lawes's, unless the animals are of good breed and forward in flesh at the time of purchase; besides, it is always necessary when a bullock does not thrive to sell it for what it will fetch, the first sacrifice being always the least. If we were asked how we would proceed with a poor bullock, we should feed it for three months at a cost of not more than 5s. per week. We should, however, much prefer taking an animal in high condition and pay a price accordingly. There are, in fact, many of our farming operations which should depend upon statements like those brought forward here. For instance, the straw grown on the farms is often greatly neglected, and is never made into good manure where sheep only are kept to consume the root crops. Again, bullocks could not usurp the place of sheep entirely upon the farms where a full quantity of roots were grown, because there would not be straw enough produced to feed and litter them, and the same result would obtain in case of house-feeding the whole

stock, supposing the food to be divided between bullocks and sheep, each being under cover.

We shall now refer to the evidence afforded by eminent practical men showing that sheep, either as a stock flock on the hill farms or grazing and fattening flock on the vale farms, are kept at a loss, in accordance with our own statement of the feeding of dry sheep, either tegs or wethers. Taking the result of keeping a breeding stock flock first. We must notice a paper furnished to the "Journal of the Bath and West of England Society" by Mr. E. P. Squarey, on "The Hill Farming of Wiltshire and Hampshire in 1861." In this we find a most elaborate and practical statement of the result of sheep-farming, illustrated by a farm of 800 acres, managed, according to the custom of the chalk hill districts, by a debtor and creditor account of the sheep stock for a year, which shows a loss upon the transaction of £111, without charging wear and tear of hurdles, &c., and cost of superintendence. We must also give the result estimated by a number of practical members of one of the most important farmers' clubs in the kingdom of the feeding and fattening of two hundred Hants Down ewes and their lambs, together with one hundred tegs, all fed for the butcher upon a vale arable farm. A minute and detailed debtor and creditor account exhibits a loss on the transaction of £62. There are no more and important accounts to be found than those we have brought forward; but it must be borne in mind it is without any reference to the value of the manure left on the land, for that would vary greatly according to circumstances, and as that is not part of our subject now it will be dealt with at a future time. In referring to the experiments relating to the comparative consumption of bullocks and sheep the most valuable we can find was carried out at the Duke of Bedford's some years ago. The average weight of the sheep experimented upon was 147 lbs., the animals belonging to various breeds. The bullocks, which were all well-bred animals (Herefords and Devons) weighed on an average 1415 lbs., being a proportion of nine-and-a-half to one in weight. The sheep consumed 6½ lbs. of oilcake each per week, and the oxen 43 lbs., thus the average quantity consumed by an ox and sheep respectively was in the proportion of about one to four. Now this experiment, as well as others we could furnish if necessary, most completely accords with the food as estimated in our debtor and creditor account as given in the first part of this article.

After having stated thus much to prove that abundance of evidence exists to justify all our estimates we must, however, be prepared to expect some diversity of opinion, for some farmers may say that 1 lb. of oilcake per day is too much for a sheep. We, however, are not disposed to quarrel about it, for we can only state our own experience and that of many other farmers that if half a pound of cake per day only was given the increased value of the animals at the end of twenty weeks' feeding would be only 15s., whilst with 1 lb. of cake it would be 20s. We have also noticed a variety of experiments of feeding cattle and sheep under the like conditions by many good farmers. But under our subject they are treated differently—the oxen under cover, the sheep in the open field; but it should be remembered that it is no suggestion of ours, but it represents a general practice upon arable farms in nearly every district, and we have simply taken the facts as we found them. In our statement the cases between the ox and the sheep are as wide as the poles asunder, the cattle being fed under the best possible conditions, and the sheep under the worst. In estimating the casualties to which both classes of animals are exposed as single and individual lives the losses of sheep we reckon as eight to one compared with oxen. Now these facts, the result of great experience, furnish strong arguments in favour of bullock-feeding as compared with sheep. We have, however, not thought it desirable to estimate their money value, as it would only serve to render a difficult subject still more intricate and complicated. After all the statements we have made we make no doubt but many farmers who have viewed these matters from various standpoints will be induced to calculate in their own way and in their own case, and thus fulfil our object in introducing it in the peculiar manner shown by our heading of the subject; and we make no doubt that business and practical men will agree with us that it may be desirable to feed bullocks under cover with one-third of the roots grown, and sheep with the remainder in the open field upon soils in general.

#### WORK ON THE HOME FARM.

*Horse Labour.*—A very important period of the year has now arrived for horse labour, and this or steam culture may now be applied with great advantage in various ways, but none more important than cultivating the land in readiness for sowing Lent corn where roots have been fed off by sheep. We wish, however, to call special attention to the cultivation of gravel or sandy soils, because, if properly scarified so as to break up the entire surface with regularity, it is by

no means necessary to plough the land, although it is a common custom to do so. We find that by scarifying a tilth sufficient to bury the seed by drilling is obtained, and the land is not so much affected by a dry season. When the land is scarified the weed seeds which vegetated on the surface during the growth of the root crop were destroyed; and as we only deal with the surface soil, very few weeds will appear to the injury of either the Lent corn or the Clover. The grass lands may now be rolled and laid up for a crop to be mown for hay, the sooner the better, before the land becomes too dry. As we must sow Beans and Peas it is well to be prepared with the seed beforehand, otherwise the best seedtime may be lost; besides, if the seed has to be purchased, the sort or quality of seed required cannot always be obtained at a moment's notice.

Stable management of farm horses has not only been referred to occasionally under the work of the farm, but was the subject of a special article in this Journal on January 10th and 17th, 1878. As, however, we have many new readers we again call attention to the necessity of attending to the health of horses. This is, however, unfortunately, almost an impossibility as the stables exist at present on many farms, for we find the floors of the stalls covered with large stones of various sizes and laid most unevenly; this is, of course, very bad for the animals, although littered with straw. In fact, knowing the pain they suffer in lying down, they do not often attempt to take the rest which they naturally require at night. This can readily be altered by a plan we adopted in our stables, one that was followed by many of our best farmers years ago, and which we recommend with confidence—viz., to take up the old rough stones and excavate the earth about 18 inches in depth; we then refill the space with dry screened loamy soil rammed down firmly, upon which the animals are allowed to stand, the dung being removed daily as usual. After a few days this earth becomes quite firm and clean for the horses to stand upon, but still absorbs all the urine. By this means a pure atmosphere in the stable is obtained at all times, until the earth becomes saturated and begins to give off the fumes that are so offensive and detrimental in ordinary stables. The earth will require changing twice a year—at about four months in the summer when the animals eat green fodder, and at eight months after they have lived principally upon dry food during the winter. Since we have adopted this plan we have generally had healthy horses free from blindness, broken wind, greasy heels, and other complaints incidental to ordinary stables, where the floors are rough and sodden straw accumulates between them, rendering the air foul. With earth floors horses living in pure air will be capable of work several years longer, thus saving the animal loss for the time, which amounts to from £3 to £4 per annum per horse. We shall refer to this subject again shortly.

*Hand Labour.*—Forking out Grass, Docks, &c., from the root crops before feeding off with sheep should now be continued. As the seasons have lately been unfavourable, many instances of land not quite clean are still frequently met with. Men will now be required on those farms where draining is needed, for the first drying winds which occur will show very plainly the parts of fields which are too wet for profitable culture: the dry land will retain a white appearance, and the wet portions a dark colour. It will then be easy to set out the work by spars and stakes, so that in case it cannot all be done immediately it may be resumed when convenient. We are, of course, alluding to under a fallow or cultivated surface, because it is only under such circumstances that the variations of colour of the land can be distinctly seen. The injury done to Swedish Turnips where the bulbs have been left in the land during the severe weather in January has been general, varying only in degree—the ripest and most matured crops having suffered the most, and the latest-sown the least, because the latter were in a growing state when the frost set in. The frost, however, was so severe before the snow came, that the latter afforded no protection in many cases. The loss, therefore, of a considerable portion of the Swede crop must be seriously felt before the grass is ready in the spring, for the water meadows, although the grass in them is not so forward as in some seasons, will prove very valuable. This is also one of those seasons which go to prove that Mangold is the most to be valued of all our root crops; for when properly secured and preserved they are good food for all kinds of stock during every month in the year. For many years it was our practice to use them all the year; in fact we grew only Carrots and Mangold with a few Cabbages, and have often begun feeding our sheep stock with Mangold of the same year's growth in the months of September and October in the open field. The Mangolds in heap should now be looked over and examined. If any bulbs should be frosted or rotten from other causes the affected ones should be removed, in order that the decay, although partial now, may not become general, and affecting the whole further on in the season. After defective roots are taken away they may be used for what they are worth, and the heaps made up into form again and rethatched, to be preserved for use during the spring and summer months. In many cases on the hill farms the loss of the Swede crop will render necessary a considerable outlay for corn or cake to maintain the usual stock. Now this is one of many sacrifices which have to be made in keeping a breeding flock of sheep, and which upon the average of seasons greatly reduces any profit which the breeding of sheep may sometimes promise. In the early frost of 1859, if we recollect rightly, when the Mangolds were damaged in all parts of the kingdom by the frost which happened in the second week of October whilst the

roots were in the ground, various modes of using them for feeding cattle were resorted to, to make them palatable, such as giving bean and barley meal, also maize meal, and we found the decayed or partially decayed roots were not injurious to the stock, although having less feeding value.

## ADVANTAGES OF A HOME FARM.

### DAIRY COWS.

Cows and the dairy take a place of considerable importance upon the home farm, a regular and abundant supply of milk, cream, and butter being indispensable. With a herd of cows restricted to a number calculated to afford only a moderate surplus over the quantity of its produce required for the ordinary daily wants of a household, this is occasionally found to be a matter of difficulty, for disappointments and failures are certain to occur in every herd however carefully selected and bred; and what is most vexatious is the well-known fact that the best cows fail soonest—best, in the sense it is here used, meaning a deep milker, quiet and kindly, with which we have no trouble till indications of failing powers and debility appear in the guise of a tendency to barrenness and excessive leanness. Then, too, there is an uncertainty about heifers, of which one or two should be brought into the herd every year. At the present time I have four heifers in calf, and shall consider myself fortunate if out of that number two prove really valuable cows. Occasional losses also occur, and it is well, therefore, that rules as to number should be somewhat elastic. It is better to have butter to sell than to have to buy it, as it is precisely in midwinter, when it is most expensive, that the supply is apt to run short. This is especially true in reference to select herds of pedigree cows restricted to one particular breed. Fond as I have reason to be of the hardy little Kerrys, yet it must be acknowledged that a mixed herd has been found to answer best, most of the cows yielding rich milk in a comparatively moderate quantity, and the remainder being deep milkers with milk of only medium richness, but nevertheless admirably adapted to maintain a supply for table and culinary purposes. Take for example the yield of an ordinary Jersey or Alderney, which may fairly be stated as ten quarts daily, and it is at once seen to be the reverse of economical to depend upon such cows for the forty or fifty quarts of new milk required every day in a large establishment. For this purpose I prefer milky Shorthorns, or Shorthorns crossed with a good strain of Channel Island cattle. Deep milkers generally impart the same valuable property to their progeny. I have three heifers, two to come into the herd this year and one next year, all descendants of a famous old cow which yielded milk abundantly, and was so well known that when she began to fail from old age and had to be withdrawn from the herd, there was no difficulty in disposing of her at a comparatively high price. The oldest of her descendants is an equally deep milker, and is at the present time in full profit, having had her third calf recently.

An important fact to remember is that the quality and quantity of milk depends in a considerable degree upon a cow's food. Underfed cows never succeed. The milk is poor and thin, and diminishes in quantity very soon after calving. The calves, too, are undersized and weakly, and the cow is usually a mere "bag of bones" for the greater part of the year. Now, without plenty of good food there cannot be a well-sustained yield of milk. It is an excellent rule never to put a cow in its stall for milking without giving it a feed of bran, even at midsummer. It is an inexpensive kind of food, all cows like it, and it is invigorating and nourishing. I always use it in winter; and when the cows are first turned out of the yard upon grass I have tried the effect of withholding it, and speedily perceived a falling-off in the quantity of the milk. This could not be caused by a scarcity of grass, for grazing does not begin till it is plentiful. No greater mistake can be made than to place cows upon a bare pasture either early or late in the year; and yet how frequently it is done! and the poor half-starved animals are walking and munching the whole of the day to very little purpose. Let the milking begin at 6 A.M., and the cows be out on the pasture soon after seven, and if it is in the condition it ought to be they will have procured enough food and be ruminating by ten, or soon after. When grass runs short in autumn take them altogether into a warm well-littered yard, with a large deep open shed on one side of it with a hay rack. Some cows are more tender than others, keeping much in the shed, others feeding from the central rack in the yard, and almost all going into the shed during rain. But if there is only a cow house, out of which they are shut during the day, and no open shed, they are apt to suffer from heavy rain and cutting blasts of wind which sweep round buildings into yards with much force.

—EDWARD LUCKHURST.



## VARIETIES.

**THE MECCHI FUND.**—The following letter has been received by Mr. Samuel Morley, M.P., in reply to an application addressed by him to Mr. Gladstone in the interest of the "Mechi Fund":—"I shall be prepared to recommend a grant of £200 from the Royal Bounty Fund for the benefit of Mrs. Mechi. I have learned with satisfaction that the subscription which you mention has been undertaken on her behalf, and I wish it success, as an acknowledgment of Mr. Mechi's great and long-continued services to British agriculture. —W. E. GLADSTONE."

— **SUTTONS' FARMERS' YEAR BOOK.**—This annual which, besides giving instructions for the cultivation of some of the principal root and forage crops, contains a concise calendar of farming operations with special and excellent articles on the vermin of the farm, and the chemistry of farm crops, which may be read with advantage by those engaged in agricultural pursuits.

— **THE FORMATION OF PERMANENT PASTURES.**—This pamphlet of Messrs. Webb & Sons, of Wordsley, Stourbridge, contains practical instructions on the drainage of land, preparation of the soil, seeds and sowing, with notes on the after culture and management of pastures, and a list of forage plants suitable for various soils.

— **CEREALS IN INDIA.**—Some experiments have been made at the Cawnpore Experimental Farm during 1879-80 on the cultivation of imported English and American Wheats and Barleys. The result seems to point to the conclusion that the time available for the growth of cereals in India is too short to allow of English and American varieties being grown with success, unless possibly the seed is sown in September and runs a risk of being damaged by excessive heat. Experimental sowings were made of three kinds of English and three kinds of American Wheat, as well as of three kinds of Barley. All nine sowings were complete failures. The seeds in most cases germinated freely, and the plants spread out into stools in a manner very different to the habit of country Wheat. But all crops grow extremely slowly, and were still green when native Wheat had finished ripening. In consequence the hot winds of March completely shrivelled up whatever grain had been formed, and no crop worth the name was gathered.—(*Nature*.)

— **WORK FOR WOMEN.**—There is nothing connected with poultry raising, whether for exhibition or for market, that a woman cannot do better than most men, and I would advise all women who from choice or necessity desire to enter the ranks of the producers, and who possess the facilities for poultry raising, to turn their attention to this agreeable pursuit. Mrs. Harrison has warned women not to expect to find a "bonanza" in bee-keeping, and I can assure them that poultry keeping is no "royal road to wealth," but I know that any woman who possesses a fair share of energy and brains, and who can devote a part of her time to the work, can make it fairly remunerative. Will farmers and farmers' wives think of what I have said? and if they will put their thoughts into words for the benefit of our readers so much the better.—FANNY FIELD (in *Prairie Farmer*).

— **BIRMINGHAM AGRICULTURAL EXHIBITION SOCIETY—PRESENTATION TO MR. LYTHALL.**—At the last meeting of the Council of this Society, held at the Queen's Hotel, a conversation took place with reference to the necessity of postponing the Shorthorn Show, which had been fixed for March 9th and 10th, on account of the prevalence of foot-and-mouth disease in the country. Ultimately a resolution was passed, on the motion of the Chairman, seconded by Mr. Holliday, postponing the Show till April 27th and 28th. The Council fixed the Cattle Show for November 26th, 28th, 29th, 30th, and December 1st. The Chairman, on behalf of the Council, presented Mr. Lythall, in recognition of his services as Secretary for a period of twenty-one years, with a richly chased and engraved "antique" pattern silver tea and coffee service; silver-mounted oak coffee tray, with shield and ebony handles, with pierced decoration; a richly ornamented silver biscuit box, a handsome timepiece, and a pair of bronze vases to correspond. The articles, which were supplied by Messrs. Mapplebeck & Lowe, bore the following inscription:—"Presented by the Birmingham Agricultural Exhibition Society to

Mr. J. B. Lythall, in recognition of his valuable services as Secretary for a period of twenty-one years. January, 1881." In making the presentation, the Chairman said it would be in the recollection of the Council that in January last a sub-committee recommended that Mr. Lythall's salary be increased by £100 per annum, and that in consideration of his twenty-one years' service the sum of £100 should be appropriated for the purchase of a piece of plate. The recommendations of the sub-committee were adopted by the Council. Mr. Lythall, instead of selecting one piece of plate, selected a number of articles of a useful as well as of an ornamental character. He thought Mr. Lythall had exercised great discretion in the selection he had made, and, on behalf of the Council, he had very great pleasure in making the presentation to him. The presentation was not solicited on Mr. Lythall's part; it emanated entirely from the Council itself. Mr. Lythall, in returning thanks, said it was particularly gratifying to him to find that his endeavours to perform his duties during a period of twenty-one years had met with their approval. He took the opportunity of thanking those gentlemen who had acted as stewards and taken an active part in the management of the shows for the kind assistance and support which they had given him during the whole of that period. For the very handsome present which the Council had given him he returned his most sincere thanks, and he assured them it would be highly esteemed by himself and his family.



## FOWLS EATING FEATHERS.

I READ with great interest Col. Taylor's "Poultry Experiences" on page 122. I was exceedingly pleased to see that he alluded to that pernicious habit—feather-eating, and I have no doubt, like myself, many readers of your esteemed Journal will feel grateful to your correspondent for the remedy he has recommended. I have been perplexed with my fowls for the last two years owing to their feather-eating propensities. I have been trying the flowers of sulphur, but I am at a loss to know how much to use. I have thirteen fowls; would two or three tablespoonfuls be too much for the above number? and should it be given on successive days, say once a day, or at intervals? I should feel greatly obliged if Col. Taylor would oblige me with the desired information. I am also at a loss to know what induces fowls to eat their feathers. I am disposed to think that feather-eating might be caused by a deficiency of grubs and insects. Three years ago I lived in the neighbourhood of London, and I had a quantity of fowls in confinement, and they never took to feather-eating. I had facilities of obtaining quantities of cheap meat, and I used to give them a little of this every day; here I do not possess those advantages. I think a little meat daily might prevent feather-eating. My fowls acquired the bad habit when they were confined in a very small house and run. Twelve months ago I had a larger house and run constructed; at present the fowls look much better, but several of them have just commenced the bad habit again. I don't think it affects their laying properties, but they look miserable. The opinion of some of your able correspondents on the above subject would be very acceptable.—JOHN MELVILLE, *Great Tew Park, Enstone*.

## POULTRY KEEPING DOES PAY.

I THINK the above has been very clearly proved by many of your correspondents, and I feel assured that if it pays to keep any sort or breed of fowl for their eggs and table qualities it will pay much better to keep a "pure breed," so that you can sell the eggs for sitting and the chickens you rear at a good if not at a fancy price. I enclose you a statement of my poultry account for the past year, and I may add that my accommodation is very limited—in fact, all my birds are wired in, and only have a little run; but I give them plenty of good food and a hot meal of scraps boiled together and mixed with barleymeal every day, in which I put occasionally a little cayenne pepper or flowers of sulphur. I also throw in all the garden refuse, which they are very fond of picking over, and when it begins to decay I turn it out and turn up the soil with a fork every few weeks. By this means I have kept all my fowls in good health, and made a very good profit.

I keep Golden-spangled Hamburgs, and I have found them



strong, healthy, and to bear confinement as well as any breed I know. They are continual layers, and do not get broody. I would advise everyone who keeps fowls to keep young ones, as many people keep the same fowls year after year instead of rearing chickens and killing off the old hens. The consequence is they get very few eggs, and that is why they do not pay.

I am sure we have used as many eggs all the year as we wanted, and they have cost me nothing, in addition to the very handsome profit which is stated below.

## POULTRY ACCOUNT FOR 1880.

Dr.	£ s. d.	Cr.	£ s. d.
January 1st, 1880.	3 16 3	Jan. 1st to Dec. 31st.	
25 fowls of sorts .....	1 4 6	Number of eggs laid, 1620	
3 fowls bought .....	8 2 9	112 eggs sold for sitting ..	1 16 9
Corn, meal, &c. ....	0 16 5	903 eggs sold for eating ..	4 4 5
Advertising and postage ....	1 8 7	605 eggs used by the family	
Entry fees, carriage, and		and for sitting for stock	
show expenses, &c. ....	15 8 6	23 cockerels and pullets sold	5 19 6
To Balance, Profit....	6 7 8	13 cockerels killed, at 2s. 6d.	1 12 6
		Prize money.....	0 5 0
		Dec. 31st—in stock:	
		20 pullets, at 4s. ....	4 0 0
		6 hens, at 3s. ....	0 18 0
		9 cockerels at 6s. 8d. ....	3 0 0
	21 16 2		21 16 2

—E. STEWARD, *New Basford, Nottingham.*

## POULTRY NOTES.

**THE POULTRY CLUB.**—To-day will meet for the first time the new and enlarged Committee of the Poultry Club. There seems a general expectation that the Club is from now to take, so to speak, a fresh departure, and that the sphere of its influence will be enlarged.

**THE DORKING FOWL.**—An interesting controversy has been going on in one of our contemporaries upon our old English friend the Dorking fowl. The chief points in it seem to be the question whether the modern Dorking is as a table fowl equal or superior to the Dorking of our grandfathers, and also what "points" are really essential to the purity of the breed, and what are the merely arbitrary creations of the fancy. We shall be glad of the opinions of our readers experienced in the breed.

**REARING CHICKENS WITHOUT WATER.**—From time to time many practical poultry breeders have given their opinion that chickens in their early days thrive better, and are less subject to diarrhoea and other maladies of chickenhood, without water than with it. We have always consulted Nature much in our treatment of all live stock, and so have been inclined to disagree with this system. During the last fortnight, however, we have given it a trial, and are determined to pursue it through the early part of the season. Of course, when the weather becomes really hot water must be requisite for the comfort of all gallinaeous birds, but at present we find that the milk from a good feed of bread and milk once a day is quite enough for our young broods to drink.

**PEKIN DUCKS.**—We have heard very opposite expressions of opinion as to the merits of Pekin Ducks as layers; it may not be out of place, therefore, to give the result of our experience. In moderate confinement we find them excellent layers; on a large piece of water at complete liberty very poor ones.

**CROSSING POULTRY.**—The result of crossing different breeds or different subvarieties of poultry is always interesting. An experimenter in Polish crosses last year mated a white-crested Black Polish cock with two Silver Polish hens. Curiously enough the whole of the produce are pullets, heavily bearded and pure black, some with a very few white feathers in their crest. How far may the original Crèves be indebted to some such cross?—C.

## PARIS SHOW.

THE annual Exhibition of live and dead fowls, which is held in connection with the show of fat beasts, seeds, cereals, &c., was opened to the public on Saturday last. It is under the management of the Minister of Agriculture and Commerce, and is in many respects very different from similar shows in this country. Fanciers of poultry are almost unknown in France, and the most of the exhibitors are dealers. The prizes are offered by the Government, and no entry fee is charged; the giving of a simple notice as to the number of pens they require being all that is necessary on the part of exhibitors. As a natural consequence of this the quality of the exhibits is in some cases very poor, the dealers appearing to treat the Show as much as a market for the purpose of getting rid of their superfluous stock as a contest for prizes.

The ideas of the Judges upon what are known as fancy points over

here seem to be in most cases rather unsettled; and the fact that several exhibitors showed two cocks in one pen, and that the number of hens in each pen varied from three to six or eight, must have rendered the task of the Judges by no means an easy one.

The French breeds were of course most numerous represented, there being no less than 531 in the sections devoted to them. The classification as regards the foreign birds was by no means what one would desire, and the entries in this section numbered only about 400.

Turkeys, Geese, and Ducks were rather under 300 in number, while Pigeons had 470 entries. Dead fowl classes were on the whole of great excellence, and far superior to anything of the kind we see over here. They had 233 entries.

The live poultry classes opened with *Crève-Cœurs*, there being fifty-five entries in the cock class, and as many in that for hens. Considering the enormous number of birds thus brought together the quality in some points, such as size and shape, was better than could have been expected, but such fancy points as crests, comb, and muffling were sadly defective. This section has the largest amount in prizes offered to it, there being five in each class. Both the firsts went to M. Jean Farcy. The winning cockerel was of good size, but much too long in leg for our taste; the hens were perhaps the most even lot in the class. Other prizes went to MM. Lemoine, Bouchereaux, Breschet, and Voisin. M. Aillerot showed some white birds which, however, were so dirty that it was hard to be certain whether the colour was pure or not. In *Houdans*, which numbered in the two classes 182 entries, the two first prizes and the *Prix d'Honneur* went to MM. Ronillier and Arnoult for a cockerel of no great merit, and a fairly good pen of hens. It was to these latter that the much-coveted chief prize was awarded. The same remarks which we made above as to the *Crève-Cœurs* apply equally to the *Houdans*, with the exception that the general quality of the exhibits was not so good in the latter classes as in the former. We may note that the prevailing colour, especially of the hens, was much lighter than that which is most fashionable over here, thus indicating the probability of a cross with the *Crève-Cœur* having been resorted to here to gain the fashionable dark colour. There were only three prizes offered in each class, and the remaining prizewinners were MM. Lemoine, Giraud, Voiteiller, and Pointelet. We can remember to have seen in England (as well in regard to size and shape as to fancy points) many finer birds both in the *Crève* and *Houdan* classes than any exhibited at the Paris Show.

Next on the list came the *La Flèche* with 130 entries. The general quality here struck us as being better compared with that of birds shown in England than in the preceding classes. This may probably be on account of the delicacy which these birds develop in the English climate having prevented their being largely cultivated here. Both first prizes went to M. Farcy, who also gained two out of the remaining four prizes, the other two going to MM. Lasseron and d'Imbleval. The hardness of plumage of these birds makes them look smaller in the show pen than the *Crèves* or *Houdans*, but when plucked for table they are really the largest of the three breeds.

The remaining French breeds to which separate classes were allotted were the *Race du Mans* and *Races de la Bresse*. The former of these seems to have its points as regards comb, &c., rather unsettled, but the prizes were both awarded to rose-combed birds. All the exhibits, while varying greatly as to comb, were uniformly black in colour. They suggested a cross between *La Flèche* and Black Hamburgs as the origin of the variety, and the result is a somewhat larger bird more upright in carriage than the Black Hamburg, but otherwise very similar to that variety. As the laying qualities of the breed are very highly spoken of, we presume it is for this that they are honoured with separate classes. The prizes for this class went to MM. Voiteiller and Loyau.

The *La Bresse*, as exhibited, appear to be of three kinds, all single-combed. The first black birds, very much of the type of the *Minorca*, but not so large as the best specimens of that breed. To this variety the two first prizes were awarded, the exhibitor in both cases being M. Maurice. The second variety simply differs from the first in being white in colour, while the third has a white ground colour poorly spangled with black in a manner suggestive of a very bad Spangled Hamburg. To this last variety the two seconds went, the exhibitors being M. Farcy and M. Vallois.

The next two classes were for any other French variety, and there were four prizes in each class, with fifty-two entries. By far the greater number of these were *Courtes Pattes*. These birds were all black in colour, and some of them were extremely short in leg. They would appear to be now quite as well fixed as a distinct variety as the better known French breeds. The first-prize cockerel, which was exhibited by M. Farcy, was of this breed, and of great merit, being of fine size, very short in leg, long in body, and in brilliant condition, while he was the only specimen of the breed that had any claim to be described as white in earlobe. Judging from the number of birds with red earlobes exhibited at Paris, we think the English judges are wrong in at present attaching too much importance to this point. In the class for hens second went to *Courtes Pattes*, belonging to the same owner. There were three in the pen, all short in leg and good in size. One of them was in brilliant condition and specially good in all points, but the other two showed traces of feathers on their legs, which we consider a great fault. The second prize in the cock class and the first in the hens were awarded to birds exhibited by

M. Vallois described as *Barbezieu*, which, however, we could not distinguish from the Black La Bresse. Third in cocks went to Courtes Pattes of M. Lemoine. Fourth in cocks and third in hens went to a breed described as *De Mantes*, shown by M. Voiteiller, which were very like Houdans with single combs, no crests, and only four toes. The legs of these birds varied in colour, and some of them showed traces of feathers, which seemed to us to indicate that they had been produced by a cross between the Houdan and the single-combed French Brahma Pootra. Several pens were exhibited of a fairly uniform type, so we presume that the variety has been kept by this exhibitor for some time. Other birds shown in the Variety class were *Breton*, which were very much like the *De Mantes*, except that the cock showed one or two white feathers, and the hens were speckled with white. *Picard*, resembling small Scotch Greys, rather long in leg; *Caussade* and *Gatinais*, none of which were distinguishable from the Black La Bresse.

The foreign breeds do not call for any lengthy notice. Buff *Cochins* were only very moderate in quality, and the same remark applies to the other variety of *Cochins*. In this latter class some fairly good Cuckoos were shown by M. Voiteiller.

The *Brahma Pootras* were, with one or two exceptions, single-comb birds of the Light variety, rather darker in saddle and hackle than we are accustomed to on this side of the water. The single comb, however, does not seem to be absolutely insisted on, as in the first-prize pen of hens shown by M. Breschet there was one pea-combed pullet. As all the birds exhibited by M. Voiteiller had pea combs we may presume that this gentleman is a convert to the English view on this point.

In *Dorkings* the prizes went in all cases to Silver Greys, which were so far superior to the general run of the class as to lead us to believe that they were imported birds. The winners were MM. Breschet, Lemoine, and Vallois.

*Spanish* were very inferior lots indeed, the cocks being cauliflower-faced, and the hens very poor in face.

*Polish* were a very promiscuous lot, the best exhibits appearing to us to be those of M. Lemoine. The first in the cock class was awarded to a pair of rather poor Silvers, exhibited by M. Breschet. We noticed a rather curious Frizzled Chamois Polish cock in this class.

The variety classes for large breeds and Bantams respectively contained nothing very remarkable, while the judging showed rather an ignorance of the points of the various breeds. M. Lemoine, who seems to be more like an English fancier than any other French exhibitor, showed some fair Hamburgs, Langshans, and Leghorns, and the same breeds were also exhibited by M. Voiteiller.

Geese were a fairly good collection, and Turkeys were considerably above the average of the other poultry classes.

The Pigeons were a very miscellaneous assortment, the best filled classes being those for table purposes. Many of these birds were of remarkable size. Amongst the Fantails we noticed some birds of rather unusual colour, which might be worth the attention of our English fanciers.

In Dead Fowl the first classes were for *La Flèche*. Some wonderful birds were exhibited, the first prize going to M. Choquet for a large pair of birds, one of which, however, seemed to us to be rather muscular in his wings. Mme. Aillerot took prizes both in the classes for capons and poulards with splendid specimens, which we were informed weighed when prepared for table from 9 to 10 lbs. each. As we have before remarked, the *La Flèche* were the best dead poultry classes, the other sections not being on the average up to this breed. In the Dead Fowl variety class first went to Mme. Aillerot for a fine pair of *Du Mans*, which looked better on the table than in the pen.

Turkeys were well represented, as also were Geese, the second prize being of the Race de la Sarthe, apparently a cross between the White and Grey varieties, and weighing 16 lbs. each.

The incubators and rearing appliances made a show in themselves; but of these we must reserve notice.

### KEITH SHOW.

THIS old-established and popular Show was held on Thursday and Friday, 17th and 18th inst., and notwithstanding the very severe winter was quite up to the average both in numbers and quality. Mr. Anderson of Nairn judged the whole Show, and his awards, as usual, gave general satisfaction.

**DORKINGS.**—*Coloured* (thirteen) were an exceedingly good class. First, two cups and special (Cran), the cock the Aberdeen winner, a grand two-year-old bird in good form, the hen good with white feet. Second (Auchinachie) a cockerel and pullet, good in shape and comb, with fine white feet; v.h.c., Beaton; h.c., Barclay; c., Cran. *Silver Greys* (fifteen) were another very fine class. Being favourites in this quarter they always produce good entries. They included the winners at the principal shows in the north. First, cup and two specials (Cran), an old bird of true Dorking shape, with a magnificent head. Second (Annand) the cockerel a beautiful large Silver with a very good pullet; v.h.c., Cran; h.c., Annand; c., Robertson.

**SPANISH** (ten).—First (Logie) a really good pair in all points. Second (George) also very good; v.h.c., George; h.c., Simpson; c., Reid.

**BRAHMAS** (sixteen) were a good all-round class of Darks.—First (Suter) cup and special, old birds, cock very good, with a much better hen. Second (Suter) a good cockerel and pullet; v.h.c., Bennet; h.c., Forbes; c., Cran.

**HAMBURGS.**—*Pencilled* (thirteen) were one of the best features in the Show. The competition in this class was keen. First (Mearns) grand well-marked birds, look like the Aberdeen winners. Second (Thomson) rather indistinct in marking; v.h.c., Hay; h.c. (Cunningham) we preferred to second. *Spangled* (fifteen).—First (Mantach) well-marked birds, good in comb and lobes. Second

(Mearns) heavy in comb; v.h.c. (Campbell) we thought might have stood first; h.c., Campbell; c., Smith.

**COCHINS** (fourteen) were a fair class. First (Mantach) fair Partridge. Second (Fraser) Whites, beautiful in colour but rather small; v.h.c. (Mantach) Buff, the Aberdeen winner; h.c., Carr; c., Bunn.

**GAME.**—*Pile or Duckwing* only produced two entries. First (Grant) very promising Piles. *Black or Brown Reds* (nine).—First (Allan) Brown Red, the Elgin winner in grand condition. Second (Allan) Brown Red, far behind first; v.h.c., McRae, and h.c. (Davidson) Black Reds.

**GAME BANTAMS.**—*Any variety* (five).—First (Mantach) a smart pair of Piles. Second (Weir); v.h.c. (Esslemont) might, we thought, have been first; h.c., Simpson.

**LANGSHANS** (twenty-six) was the strongest class in Show. First-and-cup (Slcigh), the Aberdeen winner, large bird, bad eyes, and feet rather rough. Second (Auchinachie) a very nice pair, well shown; we would have preferred them to first; v.h.c. (Pirie) very good old birds; h.c., Cran; c., Davidson. *Any Other Pure Breed* (eight).—First (Dashar) very good Polish. Second (Cran), good Leghorns; v.h.c., Black (Polish); h.c., Cran (Scotch Greys).

**DUCKS.**—*Aylesbury* (twenty-one), the best lot we have seen this season. First (Reid) the Elgin winners, really a fine pair. Second (Longmore) a very promising young pair; v.h.c., Taylor, also good, with fine bills; h.c., Brown; c., Longmore. *Any Other Pure Breed* (twenty-one) were another good class, principally Rouens. First (Cran) Pekins, Elgin winners, large, and fine shape. Second (Simpson) Rouens. Third (McDonald); v.h.c., Simpson; h.c. (Gordon) the Elgin winners; c., Thomson.

**GEESE** (six).—First (Gordon) a very large and fine pair. Second (Grant) smaller, but also good; v.h.c., Smith.

**TURKEYS** (eleven) were a fine class. First (Suter) Norfolk; second (Stephen) Cambridge; third (McDonald) Norfolk; v.h.c., Gordon (Norfolk); h.c., Cran (Cambridge).

**COLLECTION OF PIGEONS.**—First (Smith) a grand collection of twelve pairs of different varieties. Second (Longmore); v.h.c., Milne; h.c., Mearns.

### OUR LETTER BOX.

**Market or Eggs (H. T.).**—The price named by "W.C." was for fresh eggs. In the neighbourhood of large towns there is generally no difficulty in getting a remunerative price for these. In the country it is difficult, and we can only suggest an advertisement in the local press of the most accessible town.

**Chickens Weak on Legs (Idem).**—Allow the chicks as much liberty as you can. Give them a sod to pick and scratch at on wet days. Keep plenty of dry earth, ashes, or sand under them, and do not let them run on bare flags or boards. A little stimulating food, such as meat scraps and bread and ale, may also be given with advantage.

**Roup in Pigeons (T. S.).**—When birds are affected with this disease remove them into a warmer place, feed them extra well, adding hempseed, and giving a few peppercorns every other morning. It is kind and also reasonable to cleanse the poor bird's mouth and eyes with warm water, using a very small piece of sponge. Pigeon fanciers differ as to whether or not roup is contagious. We recommend separation in order to be on the safe side.

**Salt for Pastures (J. V.).**—Our late recommendation as to the use of salt upon grass land had special reference to the destruction of the fluke egg or entozoa. We do not recommend the application of salt as manure for pastures, except they consist of very dry sandy, gravel, or limestone subsoil, but a dressing of fishery salt or kainit may answer of 3 or 4 cwt. per acre if the pasture is situated away from the coast, as there is usually a sufficiency of saline particles floating in the air within a few miles of the sea. "The manuring and improvement of pastures" will form a special subject in an early issue of this Journal.

**Prickly Comfrey (Aylesmere).**—You will find full information upon the cultivation, extent of crop, &c., in an article which appeared in this Journal on the 10th of June last. If you do not possess the number it can be obtained at this office for 3½d. in postage stamps. The plants of Prickly Comfrey can be obtained of nearly all seedsmen and nurserymen. There is one question worth consideration as to the value of a crop of Prickly Comfrey compared with a crop like Lucerne; the former requiring tillage, &c.; the latter yielding three good cuttings with manure only applied.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.						Rain.
	Barome- ter at 32° and Sea and Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.				
		Dry.	Wct.			Max.	Min.	In sun.	On grass.			
1881.												
Feb.												
Sunn. 13	Inches. 30.032	deg. 34.0	deg. 31.8	S.	deg. 37.2	deg. 40.0	deg. 28.9	deg. 50.2	deg. 23.8	In. —		
Mon. 14	29.743	38.4	35.7	S.	37.0	39.4	34.0	42.2	32.0	0.374		
Tues. 15	29.780	38.6	37.8	S.E.	37.6	43.3	36.6	51.4	36.3	0.048		
Wed. 16	29.921	37.8	37.5	N.E.	37.9	47.4	32.2	57.2	27.7	—		
Thurs. 17	29.928	35.5	35.2	N.E.	38.2	45.1	33.1	51.2	28.1	—		
Friday 18	30.020	41.4	41.2	N.E.	38.6	44.4	34.9	45.6	31.5	—		
Satur. 19	30.151	37.3	37.0	N.E.	39.4	44.0	37.1	44.0	37.7	0.150		
Means.	29.939	37.6	36.6		38.0	43.4	33.8	48.8	31.0	0.502		

### REMARKS.

13th.—Fair, but generally overcast; cold wind.

14th.—Fair till 11 A.M., slight rain rest of the day.

15th.—Rain in morning; fair after 1 P.M.

16th.—Foggy morning; fair in middle of day with gleams of sunshine; bright starlight evening.

17th.—Foggy morning; misty damp day.

18th.—Foggy morning; fair but overcast during the day.

19th.—Fair and calm, but damp.

A gloomy overcast week, in no way remarkable.—G. J. SYMONS.



3rd	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
4th	F	
5th	S	
6th	SUN	1ST SUNDAY IN LENT.
7th	M	
8th	TU	Royal Horticultural Society—Fruit and Floral Committees at Society of Arts at 8 P.M. [11 A.M.]
9th	W	

### DRUMLANRIG IN WINTER.

**I**D WINTER with the snow half a foot deep, and the thermometer indicating a temperature near zero, was hardly the time when many would think of travelling a distance on an expedition of pleasure, as under these circumstances in the majority of gardens there would be little of interest visible; but Drumlanrig is at least one exception to this rule, as it is to many others in gardening.

From the small station of Thornhill the Castle can be seen at a distance of four miles, and the fine woods and undulating ground with which it is so picturesquely surrounded can be seen far beyond. The village of Thornhill appears, as it did twenty years ago, to be still in its infancy, but the manner in which its two or three short streets are lined on each side with finely-shaped Lime and other trees shows the improvement which might be wrought in many other towns and villages. Not far from here, and about three miles from the Castle, we enter the main road, and were much pleased with the appearance of a number of fine specimens of the Weeping Birch amongst other choice trees near the drive side. They were draped with crystals of hoar frost, and as the rays of the morning sun shone on them they appeared quite dazzling. We doubt if ever they looked so beautiful in summer; but be this as it may, they are certainly trees which would give satisfaction at all times, and are well worthy of being widely cultivated. The garden is reached about one mile on the station side of the Castle, and although it is not hidden it lies very low, and must be subject to both early and late spring frosts.

All branches of gardening are extensively and well carried out at Drumlanrig. Everything worth growing is grown in quantity. The small flower garden which adjoins the kitchen garden contains many beds of Carnations, Phloxes, and other flowers. There is also in this garden a fine herbaceous border some 600 feet in length by 20 in width. Surely a patch like this, planted as it is with the best selected hardy plants and flowers, ought to show at a glance what can be done with such plants, and it does. It was simply as naked and bare, so far as flowers were concerned, as any spot in the garden. I felt sorry for those who speculate in hardy plants under the impression that they will afford them a never-ending supply of flowers. There is no denying the fact that they have the best of chances and attention here, and the result is not encouraging.

Further than showing fine open quarters for summer vegetable culture, the kitchen garden contained nothing of note.

On the site of the bottom or south wall, where we remember a number of Peach, Apricot, and other fruit trees bearing about three fruits to every 10 square yards once every half dozen years, there now stands the finest orchard house in the kingdom. It is span-roofed, 600 feet long, 24 feet wide, and 18 feet in height. It is most substantially built, well heated, and although only planted three years ago with Peach, Apricot, Plum, Pear, and other trees, they are now in a full bearing condition, their strength and training showing the care devoted to them. In precarious climates or unprosperous seasons a house like this must be profitable in the extreme. That there are not more of the kind is surprising, especially as this has been such a success. We need not describe in detail all the other glass houses, but may mention that those constructed during the last ten years are unsurpassed for convenience and finish. The vineries are of little interest at present, as Grapes are only grown in quantity for autumn supply; and a supply there is sure to be, as the rods are extremely strong. The numerous Pine plants are also extraordinary examples of high culture. I have never seen their equals. The fruit of those first starting will be worth going a long way to see.

Stove plants are numerous and in splendid condition. The short days and cold weather does not appear to have any injurious influence on them there. The Crotons, Dracænas, Aloecasias, and other fine-foliaged plants were noteworthy for their healthy foliage, their high colours, and the small pots they were growing in. Most of the pots employed in the stoves, Orchid and other houses, are glazed outside. This gives them a very clean ornamental appearance, and they never need washing. Before leaving the stove I must not omit to mention several seedling Crotons which Mr. Thomson has been fortunate enough to raise. They are more ornamental than many now in commerce. One in particular I thought the most showy Croton I had seen. It has very broad leaves of the brightest canary colour, a good habit, and has a distinct effect even amongst the best of its genus. Pitcher Plants, including Sarracenias, are well cultivated at Drumlanrig. The Nepenthes are acknowledged to be the finest in the country. They are mostly grown in living sphagnum moss in small baskets and pots, the size and colour of the leaves and the magnitude of the pitchers being surprising. Their propagation is sometimes a doubtful operation to many. Here they root freely in sawdust and plunged in strong bottom heat. Sawdust is an important material in the garden at Drumlanrig. It is largely used for plunging, for propagating, and as a restorative agent. Whenever a rare Orchid or other plant is deprived of its roots or is in a sickly condition it is washed clean and potted in sawdust, and rarely does this fail to start them into fresh vigorous growth.

Calanthes are grown largely. They were being potted at the time of my visit, and the pseudo-bulbs promised well for flowering. Hitherto they have produced many spikes 4 feet long to each pot, and for cutting for vase decoration in September and October they have no equals.

We now come to the Orchids, of which Drumlanrig may justly be credited with one of the finest and most healthy collections in the country. For health and cleanness they leave nothing to be desired. Several large houses are devoted to them, both "cool" and "hot." In the cool house the Odontoglossums are splendid. Some 250 fine plants of *O. Alexandræ* and *O. Pescatorei* form the stock of these useful and valuable



Orchids. *Cypripediums* in quantity and of the best kinds, *Masdevallias* and *Pleiones*, all do remarkably in this house. A *Vanda* which has been undergoing cool treatment here for the last two years is as healthy as those in warmer quarters. Into this house Mr. Thomson told us air is admitted through 4-inch pipes placed at intervals in the front wall, and the gravel on which the pots stand is placed in zinc trays, which are kept constantly filled with water in hot weather. In the warmer houses *Vandas*, *Dendrobiums*, *Lælias*, *Phalænopses*, *Aerides*, *Cattleyas*, *Cœlogynes*, and other Orchids that are worth growing are in a most luxuriant condition. The *Vandas* are growing in finely made oak crates about a yard square and as much in depth. These contain from three to six plants each; many of them are 4 feet in height and well furnished with foliage. Plants of *Phalænopsis amabilis* are in hanging baskets, and have long spikes of bloom and buds in profusion. In one of the Orchid houses there are a number of plants of *Anthurium Scherzerianum*, which for size and health are the finest specimens I have seen. The number of spathes these will produce will be enormous, and we may depend they are the best varieties, as no plant would ever be grown to a large size at Drumlanrig which was in the slightest way inferior in either form or colour.

On the back wall of one of the lean-to Pine houses *Bougainvillea spectabilis* receives that attention which it seldom gets but highly merits. Four plants are planted out in a narrow bed, and they are trained fan-shaped, like Peach trees. The branches are very strong, and twice a year all the side shoots are cut off them, when they afterwards emit a profusion of young shoots, each of which produces long racemes of their beautiful pink bracts, which are much valued. The cool greenhouses contain large quantities of the hardier Palms, *Heaths*, and one of the most promising collections of young specimen *Azaleas* I have ever had the pleasure of seeing. *Camellias*, too, are in grand health, and bloom profusely from September onwards. By starting them into growth early and growing them on freely there is no difficulty in having them in bloom so early as September, and this is certainly worth knowing and practising by those who have many cut flowers to supply in the autumn months.

About one mile from the kitchen garden and chief glass houses is the flower garden. Some hundreds of thousands of bedding plants are employed here in summer; but of course in winter there is nothing to be seen in this way, only the extent of ground gives an idea of the wonderful display of exquisitely arranged colours that must be seen here at the height of the season. About 60 acres are devoted to flower garden and shrubbery. Terrace after terrace, with level spaces between, rise until the level of the Castle is reached, and in looking down from this elevation one of the finest views in the country is obtained. The flower garden lies below; plateau after plateau, with dark Yews and other trees intervening, comes into sight in rapid succession, while on the other side of the river an elevated ridge of forest trees forms an effective background. Eastward from this are remarkable harmony of hill, dell, and stream is visible for a distance of sixteen miles or more. I have heard lords, ladies, squires, nurserymen, gardeners, and travellers of many nations say the like of Drumlanrig they never saw, and with all I thoroughly agree.—PARAGON.

#### NOTES FROM MY GARDEN IN 1880.

##### GLADIOLI.

THERE is one advantage in growing many plants—that if failure takes place in some there are others which compensate for it. All the eggs are not in one basket. Thus, although I had to complain of the orange fungus amongst my *Roses* and of the woolly aphid amongst my *Auriculas*, I had a very successful season with another favourite flower, the *Gladiolus*; yet it, too, is one of those which in other seasons has caused me much trouble, and which still puzzles me exceedingly.

My culture of the *Gladiolus* is very limited in extent, and I believe our great grower Mr. Kelway was considerably amused and not a little surprised when he saw how small it was. "Well, I have seen him show some fine spikes, and do you mean to say that he cut them from these beds?" was his somewhat incredulous query; and I can well understand how the man who grows his

twenty acres must have regarded the two or three small beds that I manage to cultivate. I have now grown the *Gladiolus* for twenty years. Some seasons I have been in despair and ready to give them up altogether, at other times so captivated with them that I have determined to run all risks and go on with their culture; and the strange thing is that I have never been able to give any reason why one season should be favourable and another unfavourable. The mode of treatment varies but little, the character of the soil remains the same, and yet the difference is very great. In one season I see a vast number of the corms dying and the good trusses comparatively few; in another the gaps limited in number and the blooms excellent. I do not see that the character of the season makes much difference. They like moisture, but 1879 was too much for them; but in a very dry season they do not flourish. Fine autumns which tend to ripen the corms are in their favour, but we did not certainly have a fine autumn in 1879, although it was, of course, the corms saved then that gave me the good bloom of 1880. My stock generally consists of corms of my own saving. A few I obtain from France and a few from Mr. Kelway. I do not see much difference as to the losses, which occur pretty impartially in all three, although I think on the whole I have better blooms from the corms raised in France than from those saved by myself; I mean, of course, the same varieties.

Last year I had two of my beds in a part of my garden where I never had them before, and these certainly were the best. Of course it will be said it was new ground and the soil was not sick with them; but the year before, when I had so many failures, they were grown in beds where I had not had any for eleven years; and as I have said, one of the most successful growers I ever knew grew his for seven years in the same soil, and I believe, had he lived, would still have grown them in it. The soil, too, was very much stiffer than I thought would have suited them. So here again I was puzzled, as I know most growers consider a friable soil best suited for them, and that at Fontainebleau is of this character. Then, again, some of the finest blooms that I had this season were from some scattered corms which must have been in the ground eight or nine years, as they came up amongst my *Roses*, and must have been the produce of spawn that had remained in the ground all that time. One thing has certainly been impressed on my mind more and more, and that is that deep planting is the best. I shall never plant at any shallower depth than 6 inches, and I am not sure that even more would not be desirable. I believe, too, that a good heavy mulching of manure is very essential to their well-doing, and that it ought to be applied somewhat early so as to throw vigour into the stems; for although they do not like to have fresh manure in contact with them, they seem to delight in the moisture that reaches them from it.

I cannot too strongly advise those who wish to cultivate this very beautiful flower to be very careful over the spawn (as the small corms are called), which in some varieties are found in large numbers clustering round, while in others they are comparatively scarce, and in some varieties, such as *Adolphe Brongniart*, are very rarely found. The plan I have of late years adopted is to take them off at the time of lifting the corms, store them away in paper bags, and then in the spring pot them, first of all taking off the outer hard skin. A number are placed in a pot, and put in a cold frame. When they have started and the pots are tolerably well filled with roots they are turned out into the open ground, and make by the end of the season very fairly sized corms. These in a year or two will give good spikes of bloom. It is all very well to talk about depending on seedlings; but as in all other flowers the really good ones obtained are few, and although there is much pleasure in raising new varieties, there is ever the danger of thinking too much of one's own children. A grower like Mr. Kelway, who reckons his seedlings by hundreds of thousands, and whose long experience enables him to decide on the merits of a flower, is in a different position; but for those who only grow a few, while seedling-raising may be a very interesting occupation, it is not well to place dependance on the seedling bed for exhibition purposes.

With regard to new varieties, I think that some of the French sorts of last year are of a very high order of merit. Perhaps the two best were *Baroness Burdett Coutts* and *Archduchess Marie Christine*. The former is a very large flower with a very long spike, rosy lilac in colour with carmine spot on the lower petals, and altogether a very remarkable flower. *Archduchess Marie Christine* is another very beautiful flower for which I obtained a first-class certificate; white ground, flamed with rosy lilac; large well-opened flowers, and a beautifully formed spike. *Flamingo* is a most brilliant scarlet flower with a purple shading in it, somewhat in the style of *Pasquin*; while *Rayon d'Or* is a good accession to our limited class of yellows.

Among the few that I have been enabled to grow of Mr. Kelway's I found the following last season to give me fine blooms—*Marcianus*, a brilliant orange red, with a suffusion of purple and carmine stripes on the lower petals. *Rev. H. H. D'Ombraïn*, cerise; a large and beautifully formed flower, with a clear white throat of great substance. *Claribel*, a pure white, with a violet stripe on the lower divisions. *Earl Russell*, violet shaded with rose, with a dark violet stripe on the lower divisions. *James Kelway*, crimson edged with maroon, with a white line on each petal; good form and stout in substance. *Mrs. D'Ombraïn*, white tinted with lilac rose. *Dr. Woodford*, salmon flaked with carmine, yellow spot on the lower petal; a fine flower. *Egyptian King*, a very remarkable flower, dark maroon in colour, shaded with deep brownish crimson; somewhat in the style of Souchet. *Africain*, a very fine flower. These are, I am aware, but few out of the many remarkable flowers raised by Mr. Kelway; but I have noted here only those which have bloomed in my own garden. There is no more lovely flower for autumn decoration than the Gladiolus, and despite its waywardness one cannot help wishing that we saw it oftener on the exhibition table; but it does not come in until the London season is over, and hence it receives but scant recognition. We may, however, anticipate a good display of it at the Manchester Exhibition, where doubtless Mr. Kelway will come out in great force.—D., *Deal*.

#### THE VEGETABLE SUPPLY.

BEING a grower of vegetables in four counties, and an amateur, not a professional, I send you some experience you may think worth while to insert in your Journal.

I corroborate every word that has been written by the two market gardeners from Cheshire and Liverpool in your number of February 10th. I am perfectly certain, from a knowledge of many parts of England and its rural population, that before farmers are persuaded to turn to market gardening the present generation of mothers must themselves be taught the use of and methods of cooking vegetables, to teach the rising population in turn, the same as the French and other continental nations, and learn what an immense advantage to their households, however poor, it is in a sanitary point of view, as well as having good and nutritious food in the form of soups that all classes of the French consume every day both winter and summer made from Cabbage, Onions, Leeks, Gourds, &c. This I have to teach to almost every English cook I get. When the population learn this desirable art of treating their families daily to a vegetable diet, it will probably pay those that understand vegetable production to go in for it on a larger scale than at present. Owing to the above facts, I am quite positive that in most parts vegetables are at present raised far beyond the requirements of the poorer classes, and hence the bad prices complained of everywhere, and the immense waste of vegetable produce, poor as that produce is generally, in every parish. Farmers are not likely to make profits in present bad seasons where professional and intelligent market gardeners are unable to keep large stocks of Broccoli and Cauliflowers through these winters of severe and variable weather. If "WILTSHIRE RECTOR" and others would carry out this excellent idea of having the cottier population taught the use and cooking of vegetables in every parish of England, we might be sure of a vast decrease of illness, a far more healthy and thrifty people, and then it might pay to increase the growth of vegetables. I think farmers ought to think twice before becoming market gardeners.—SAXORING.

#### ROSES—HARD PRUNING—ORANGE FUNGUS.

AFTER the experience of last season, and the timely warning given by "D., *Deal*," on page 68 of the Journal, I should expect every Rose-grower to be particularly careful when the season for pruning arrives. Those who, like myself, grow only a hundred or two, and who may be held to be less experienced, should especially take note. I did not commit the mistake of sparing the knife last spring. In fact, several who saw my work considered I had gone to the opposite extreme. I pruned many plants down to the surface, even below the surface of the ground, so that when finished some spaces seemed empty. I had, however, the satisfaction in due time of hearing some of these same friends exclaim, "What fine wood you have!" and I did not lose one plant, although they were only protected by a slight covering of leaves. This safeguard I have again employed, and I feel pretty confident that this year with better ripened wood and the removal of every inch of what is injured, my loss will trifling, notwithstanding the intense and protracted frosts we have had.

My plants every year suffer in some degree from the orange

fungus. Rivers in his "Guide" says, "No cure has yet been found for this disease." I have looked for some reply to "D., *Deal*," with regard to this pest, but none has yet appeared. My soil and situation are both considered favourable to the Rose. I have tried picking off the affected leaves, but I soon found it impossible to cope with it in this way. I may say that last year it seemed checked by one or two liberal dustings with flowers of sulphur applied for mildew. I afterwards syringed the plants with a strong solution of soft soap at a rather high temperature. I cannot remember where I saw this recommended. The fungus did not spread to anything like the usual extent, although the dry weather we had is held to be inductive of this special plague, and I shall adopt the same treatment unless some of your readers can recommend a better.

All Gladiolus growers must await with interest "D., *Deal*," notes on his experience with these favourites, and, perhaps, some interchange of opinion as to varieties, &c., may be of value before the planting season has arrived.—A NORTHERN AMATEUR.

#### CUTTING DOWN YOUNG VINES.

YOUR correspondent Mr. Pettigrew has referred to this subject in terms that are sound and reasonable. There are, however, too few employers who are inclined to give their Vines such a chance as is there claimed for them. They generally expect to see the colour of their Grapes the second season. Two or three bunches to a Vine may safely be taken without much injury to the Vines if the following course is adopted:—Bend the rods down and peg them into the soil as shown in the accompanying figure. Rub off all the buds below *b*, except at *a*. Prune the cane back to the very best eyes, if they are half way up the rafters so much the better. Restrict the growth of the side shoots above *b*, so that the

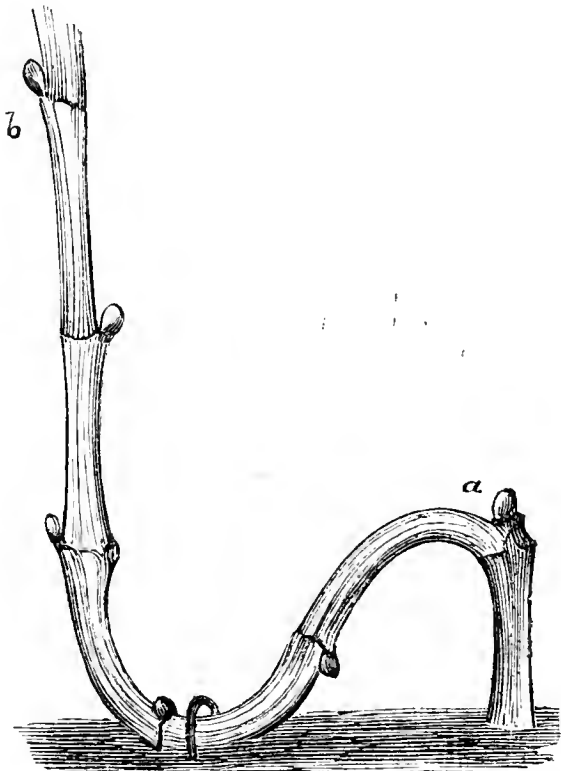


Fig. 36.

prominent canes coming from *a* may have plenty of room. Leave two or three bunches on the supernumerary cane, allowing it to extend to the top of the house, and in the third and fourth years take the main part of the crop off this cane, when it may be cut out altogether. By this plan you can get a better permanent cane, and I think this is best done by only allowing it to extend up the rafters 6 or 8 feet the first year, encouraging a good lateral growth at the base. Restrict it in a similar manner the second and third years, leaving but a limited number of bunches on it till the other rod is cut out, when it will generally be found to be in a good position as a permanent Vine. By pegging the cane into the soil it soon becomes rooted and in a measure self-supporting, and so there is less risk of the Vine being exhausted by bearing fruit the first and second years. It will be understood that all shoots must be kept pinched close on the temporary cane as the other advances up the roof.—R. INGLIS.

CHLOROPHYLL.—Mr. W. Carter contributed the following remarks to a recent issue of *Nature*—If Cress seeds are grown for

a few days in the dark on damp cotton wool, and then, beneath the surface of water, introduced into an inverted glass jar filled with water, they may be exposed to daylight for an indefinite time without chlorophyll being developed. But the plants are not dead; for if, after a few days' exposure, the cotton wool on which they have been grown is cut in two beneath the surface of the water, and one half, with its plants, is restored to the inverted jar of water, while the other is placed under an inverted glass jar containing air only, and then these two jars be exposed to full daylight, the plants beneath the jar containing air rapidly become green, while the others never do so. Light, therefore, cannot always cause the development of chlorophyll in the etiolated leaves of living plants.

#### MARÉCHAL NIEL ROSE ON ITS OWN ROOTS.

I CAN corroborate what has been said in favour of this Rose doing well on its own roots. We have here a plant which was a cutting struck in February, 1879. In April following it was planted in a border 2 feet wide at the foot of the back wall of the greenhouse. The soil used was strong turfy loam and cow manure, four parts of the former to one of the latter, with a free admixture of old lime rubbish; the depth of soil is about 2 feet, and 1 foot of drainage. It commenced growing freely, and was copiously supplied with water at the roots and well syringed. The shoots, several in number, were trained thinly on the wall and under the roof, and last February it produced thirty-five blooms. After blooming it commenced growing freely, making twelve new shoots, which were trained in a downward direction towards the front of the house; the longest shoot made since March last is 25 feet; upon the plant there are now 340 bloom buds, which look healthy and strong. We give the border a good soaking with weak liquid manure about every ten days. Another plant put out in the same border in March last (a cutting in February previous), commenced growing with three shoots, the longest of which is 28 feet; on it there are at the present date 130 bloom buds. In the same border I planted at the same time as the large Maréchal Niel a plant of Gloire de Dijon on the Manetti stock. It made scarcely any progress the first season, growing only about 2 feet. Last March it threw out three shoots from the bottom just above the union. They grew fast and strong. Five other shoots followed from the top of the previous year's growth. The whole plant is now covered with buds from top to bottom, four hundred in number. Several blooms have also been cut during the winter. The above plants have never at any time been troubled with green fly or mildew.—E. MOLYNEUX, *Swanmore Park, Bishops Waltham.*

It was scarcely necessary for "OXONIAN" to explain on page 146 that he had not struck hundreds of Maréchal Niel Roses from cuttings, as had he done so he would not have said in a previous issue "Maréchal Niel, I am certain, will not do well on its own roots." Before "OXONIAN" was so "certain" on the point that he raised, he ought, at least, to have been fortified by experience. I spoke within the mark when I said I had gathered hundreds of blooms of Maréchal Niel from plants struck from cuttings. I have really gathered thousands. One plant or tree yielded an average of four hundred blooms for ten years, and I could name another that has produced twice that number. I have sent plants to many counties in England, to Scotland, Ireland, and even America—or rather I struck them, and they were sent as presents to friends or in exchange for other things—none were sold. Blooms from some of the plants raised from cuttings were sent to the Editors, who stated they had never seen finer. "OXONIAN" appears to doubt the longevity of the Maréchal on its own roots; but when he has had, as I have had, thirty years' experience in Rose culture, he will find that this fine Rose when well established on its own roots will live longer than when worked on either the Briar or Manetti stocks. Worked low on the latter stock the Rose is soon on its own roots, and worked high on the former it swells, forming large protuberances, cankers, and decays. I doubt not that we shall yet have further evidence that the Rose in question will do well on its own roots notwithstanding the strong and unqualified assertion to the contrary.—A ROSARIAN'S GARDENER.

#### PARAFFIN TUBS.

YOUR correspondent Mr. A. Harding will find tubs made from paraffin barrels exceedingly useful for large plants when sawn through the middle, having been previously burnt out, which most effectually destroys all traces of either paraffin or spirit. The operation of burning further assists the wood in resisting the ill

effects of the moist soil as the inside surface becomes charred. It will probably be necessary with his barrel, which has been some time in use for water, to first dry it and place a little paraffin in the bottom, which with a few live coals thrown in will ignite the whole of the inside surface. Some judgment is required in not allowing it to burn too long, but in the case of recently emptied tubs a longer time may be allowed. When it has exhausted the spirit, which may be judged by the cracking of the wood, turn the barrel upside down with a long-handled rake, and the flames are at once extinguished. A good scrubbing renders them sweet and fit for use. A couple of iron handles from the blacksmith made with six screw holes to each are of great assistance in removing them when filled; two or three coats of green paint, and finally one on the hoops of black, renders them fit associates for the newest of pots.—J. W. SILVER, *Farnley Gardens, Otley.*

YOUR correspondent A. Harding requests information as to the mode of preparing paraffin tubs for Tree Ferns, and perhaps the following hints may be of service to him:—I have employed them for the last four years for Ferns, Palms, and fine-foliaged plants, and have found them answer remarkably well. I have the tubs cut in halves, the sharp edges being rounded off with a spoke shave; five holes are then bored about an inch in diameter for drainage, after which I place a few shavings in each half, light them and allow them to burn until the wood is partially charred, when the fire can easily be extinguished by turning the tub upside down. Handles are then screwed on, and three coats of green paint are applied. I thus secure useful plant tubs at a nominal cost. It is doubtful if scalding them would be successful, but no one need be afraid of placing the most tender plants in them after having undergone the above operation.—S. MORTIMER.

[Mr. W. Iggulden also states that he has found the above practice successful.]

#### THE CINERARIA.

THE numerous varieties of this popular flower are supposed to be the offspring by various crosses of *Cineraria cruenta*, *C. lanata*, *C. aurita*, and others, which were introduced into this country from the Canary Islands about the close of the last century. There are no plants amongst the florists' flowers that produce such a variety of colours as the *Cineraria* of almost every shade except yellow, and no plants with which I am acquainted will repay the cultivator better for his trouble than these, for they seldom fail to flower unless by wilful neglect they become infested by aphides, which immediately attack the sickly plant. Amongst the varieties usually cultivated the double forms introduced a few years ago are worthy of special mention. They are very effective, but the flowers are not so large and striking as the single ones.

*Cinerarias* are easily raised either by seed or by offsets: the latter is the mode adopted to preserve good varieties. As soon as the plants have flowered remove them from the conservatory or greenhouse, cut down the old flowerstems, and place the pots in a cold frame, giving water sparingly until growth commences. When several leaves are formed take the offsets carefully off with a sharp knife, and if possible with a portion of the rootlets attached; place them in small pots and grow the plants in a cold frame, keeping them close and shaded from the light for a fortnight, and from bright sunshine for another week. By this time they will be well rooted, and will require a shift into pots a size larger.

The easiest way of raising a batch of plants, and the one generally adopted, is by sowing seed towards the end of April. By procuring seeds of some well-known strain a large proportion of the seedlings may be relied upon to produce good blooms. The following is the method I pursue:—Take a clean flower pot 6 inches in diameter, and fill it three parts full with potsherds; then place a little moss or a few leaves over them to prevent the drainage from becoming choked, fill up the pot with some fine light soil, press it down lightly, and make the surface smooth; sow the seed, and cover lightly with a little fine soil, and give a little water through a fine rose; afterwards lay a piece of glass over the pot, and place it in a frame or greenhouse. The seedlings will appear in about seven or eight days after sowing. As soon as they have three leaves prick them out into shallow seed pans in a somewhat richer soil; they may then remain in these seed pans till they have produced more leaves and fresh roots. Pot them into 3-inch pots, shade for a few days, and when the roots reach the sides repot the plants in the same manner as the offsets. Prepare a compost in the following manner, mixing in a moderately dry state:—Turfy loam from an upland pasture, two parts; decayed leaves, one part; manure from an old Mushroom bed, one part; and a small addition of coarse river sand.



The whole should be well chopped with the spade and carefully mixed before using, but not riddled. Preparing the drainage of the pots is of the greatest importance, as Cinerarias require at all times an abundant supply of water, and neglect of this often leads to disastrous results. Have a sufficient number of 6-inch pots well washed and dried; have also a quantity of potsherds in two sizes—one about the size of walnuts for the bottom of the pots, the other smaller to cover them. There should be at least  $1\frac{1}{2}$  inch depth of crocks covered with a little dry moss or leaves to prevent the soil mixing with the drainage; then proceed with the operation of potting by placing a handful of soil on the crocks sufficient to keep the plant level with the rim of the pot, set the plant in the centre, and fill round it with the compost, pressing it gently down; be careful not to break the leaves, as they are very tender. When the pot is quite full give it a gentle knock upon the bench to finally settle the soil, and as soon as all are finished place them in a cold frame facing north, and give a gentle watering with the rose on the pot. I always water them over the leaves, and I find by doing so they are kept clean and free from the green fly, which is their greatest enemy. Cinerarias are very fast-rooting plants, and they will soon require another shift. To know when they need it turn a plant carefully out of the pot; and if the roots have reached the sides and are running through the drainage repot again immediately, for if the roots once become closely matted the plants will be crippled in their growth. Eight-inch pots should then be prepared in the same way as before mentioned, using the same compost for the potting; after this shift the frame should be reversed, as the season will now be advanced, and the plants will require a south aspect. It will be necessary to shade them for a few days if they should flag after potting, keeping them well watered over the leaves. The principal object is to keep them growing freely. By the time they have filled these pots well with roots the plants will have attained a sufficient size for all ordinary purposes, but if large specimens are required they must have another shift.

They are best without heat if they can be protected from the frost, and where there is neither greenhouse nor heated pit they will be safe in a cold frame through ordinary winters if it is covered every night with mats or litter, and when frost is severe in the day as well. It will also be necessary during very severe weather to pack round the sides and ends of the frame or pit with dry leaves or litter of sufficient thickness to keep the temperature a little above freezing point. Another way is to dig a pit in a dry situation deep enough to sink the frame level with the ground line. By this method the cultivator will have less difficulty in preserving the plants from the effects of frost. During severe weather it will sometimes be necessary to keep the covering on the glass for a long time. I have known such structures covered and the plants kept in darkness for as much as a fortnight without injury, but on all favourable days they should be uncovered and moderate ventilation given. The plant will grow and be healthier in such a situation than in greenhouses, but will not come into flower so soon as plants grown in heated pits. Whilst in the cold frame I would recommend a bottom of roughish ashes for them to stand upon, which will not only allow all surplus water to drain freely from the pots after watering, but prevent the worms getting into them, and check the inroads of slugs and snails, which are very fond of the young foliage. At all times a sharp look-out for the green fly must be kept, and soon as the first one is discovered the plants should be fumigated.

I especially caution the amateur against employing too much artificial heat, which should not as a rule exceed  $45^{\circ}$ , and in no case more than  $50^{\circ}$ . Any attempt to unduly force the Cineraria is certain destruction. As soon as the flowerstems appear they are greatly assisted by an occasional application of weak liquid manure, which increases the strength of the plant and imparts a richer tone to the foliage, also adds to the size of the flowers. When the flowerstems are well advanced and the flowers appear the plants should be placed in the greenhouse or conservatory, giving them the lightest and most airy situation in the structure. If the flowerstems are numerous, causing the flowers to be too crowded, it is a good plan to employ a few sticks to tie the stems to, and the flowers will then be seen to a greater advantage and the plants be benefited by a freer circulation of air among the branches.—J. WALKER.—(Abridged from a Paper Read at Sheffield.)

#### FLETCHER'S PATENT METAL SUBSTITUTE FOR PUTTY.

MR. FLETCHER (Fletcher, Lowndes & Co., 13A, Great George Street, Westminster) has submitted to us this invention for affixing glass in horticultural and other structures where glass is needed. As is stated by the inventor, "the metal substitute for

putty is formed of such a section of hard incorrosive metal that shall lie evenly and with a uniform pressure upon the surface of the glass, however uneven such surface may be; and can be adapted to any form of glazing bar, whether in wood or metal, now in ordinary use." The section fig. 37 shows the appliance as used without a sashbar; indeed in this form it is a substitute for a bar as well as for putty. Fig. 38 shows its applicability to an existing bar, and thus rendering putty and paint superfluous. The form of the metal is such as to grip the glass tightly, in this respect being perfectly safe against high winds, while it is sufficiently elastic to yield to pressure, such as the expansion of water during frost, and for the removal and replacement of squares as may be needed. The inventor also claims for his plan of glazing the

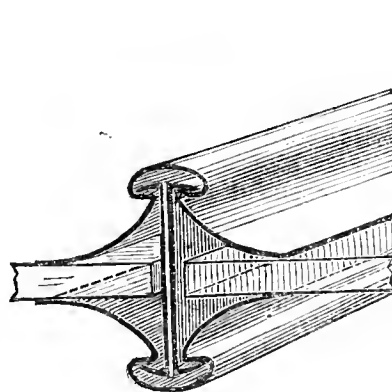


Fig. 37.

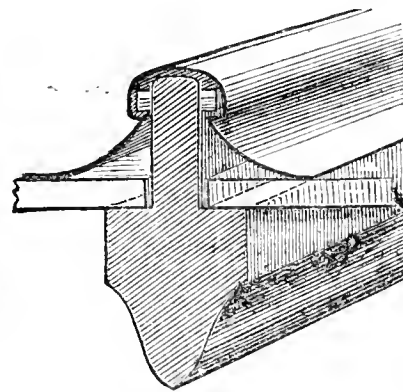


Fig. 38.

advantage of being 10 per cent. less costly than ordinary glazing with putty and paint. This of course we have not tested, but we can testify that the example submitted to us was thoroughly efficient, and combined firmness, elasticity, simplicity, and durability. By this mode of glazing we have no doubt a roof would be safe, sound, and waterproof.

#### ROSES ON THEIR OWN ROOTS.

FOR many years has this subject been discussed, not in a series of papers as seasonable hints, nor with anything like that degree of earnestness which its importance renders it worthy of, but rather with a vague uncertainty and a mingling of inquiry and suggestion than an explicit statement of facts—results achieved and cultural details. Nor have we far to look in search of the cause of the general negligence of what should be a popular method of the culture of such an universal favourite as the Rose. It is owing, I think, chiefly to the fact that nurserymen do not offer Roses on their own roots. New kinds of stocks crop up—seedling Briars and so forth—but "own roots" are kept in the background, simply, I suspect, from the large quantity of stout thoroughly developed wood that must be employed in making cuttings by the thousand, which wood could not well be obtained even in our largest nurseries without such a mutilation of the stock as would materially affect its value.

Long ago the idea of growing Roses on their own roots occurred to me; and the attempt to do so proved so successful, and the bushes so superior to all others, that cultural details from making the cutting and onwards through the entire process of the development of a finished specimen were given at length in the pages of the Journal. Cuttings of stout firm wood of the current year's growth were made early in autumn, inserted in sandy soil in a cold frame, transplanted to a nursery bed as soon as the roots were sufficiently forward in spring, and by generous treatment and careful stopping and training elegant cone-shaped bushes some 4 to 5 feet high were produced in two years. A few late flowers were allowed on them in the autumn of the second year, and in the third season they were laden with bloom, and were literally pyramids of beauty, offering a striking contrast to the stiff unsightly standards that are still grown by thousands. Nor could the dwarfs from which the Rose exhibitor cuts his choicest flowers bear favourable comparison with them; for his aim is to produce excellence in foliage and blossom, and he is quite content if each plant has three or four stout shoots, each crowned by a single good flower. But then such growth most readily affords him precisely what he wants—a few fine flowers, and nothing more, an object totally at variance with that of the professional gardener, who requires fine flowers and plenty of them, so disposed as to be attractive individually and collectively. To him, therefore, Roses on their own roots, trained as I have shown, are infinitely preferable, provided he is able to bestow the requisite amount of attention upon their culture; for all Roses like generous living and soon deteriorate without it. It is true enough that they will live

and blossom in a feeble way for many years with very little attention, but they are the reverse of ornamental.

Now the growth of a Rose is naturally so pliant when young that it may readily be trained to any form that individual taste may suggest, and one may usefully inquire why this valuable property is not turned to account to impart greater variety and beauty so as to relieve the too common monotony of Rose gardens. Not that one would altogether advocate the formation of a garden full of Rose bushes trained with mathematical precision, however elegant in design; rather should we strive to impart variety under the pleasing guise of bowers covered with "Lovely Ramblers," pillars, arches, banks, whereon there should be a freedom and luxuriance of growth imparting an air of semi-wildness and with something of the grace that in the wild Rose so much attracts our admiration.

In Lady Barker's charming book "A Year's Housekeeping in South Africa," occurs a description of her garden in "Fair Natal," of which she says: "The feature of this garden was Roses—Roses on each side whichever way you turned, and I should think of at least a hundred different sorts. Not the stiff standard Rose tree of an English garden, with its few precious blossoms to be looked at from a distance, and admired with respectful gravity. No; in this garden the Roses grow as they might have grown in Eden—untrained, unpruned, in enormous bushes covered entirely by magnificent blossoms, each bloom of which would have won a prize at a Rose show. There was one Cloth of Gold Rose bush that I shall never forget; its size, its fragrance, its wealth of creamy yellowish blossoms. A few yards off stood a still bigger and more luxuriant plant some 10 feet high, covered with the large delicate and regular pinkish bloom of *Souvenir de la Malmaison*. When I talk of a bush, I only mean the especial bush which caught my eye; I suppose there were fifty Cloth of Gold and fifty *Souvenir* Rose bushes in that garden. Red Roses, white Roses, Tea Roses, blush Roses, Moss Roses, and last, not least, the dear old-fashioned homely Cabbage Rose, sweetest and most sturdy of all. You could wander for acres and acres among fruit trees and plantations of Oak, and Willows, and other trees, but you never got away from the Roses. There they were, beautiful, delicious things, at every turn; hedges of them, screens of them, and giant bushes of them on either hand." And she adds further on, "It was emphatically a poet's or a painter's garden, not a gardener's garden."

Very much like a page of the "Arabian Nights," is it not? Only we know it is a literal statement of facts often dwelt upon by other sojourners at the Cape, and we are also aware of the tantalising fact that much of the wonderful luxuriance is owing to the climate. Do we, however, do all we can to promote luxuriant growth? I have frequently seen Roses on their own roots in very rich soil throwing up numerous shoots from beneath the surface, and such shoots are justly termed suckers, for they would soon rob the old growth of its requisite nourishment from the roots if pinching or training were resorted to. Yet if such bushes were allowed to grow almost wild, only cutting away weakly growth, what a wealth of blossom would the "suckers" yield if left unshortened and bent a little, for then every bud would give us a flower-bearing shoot. The idea is not at all original, for I have repeatedly seen it acted upon with more or less success. There are soils wherein Roses will flourish for years, but in poor thin soil there is nothing for it but constant high feeding; and in view of this, the preparation of wide deep stations in the first instance would be true economy, for then simple supplementary supply of manure would suffice for a considerable time. "I could a tale unfold" of success and failure in a thin soil that would convey a useful lesson, for it has been my lot more than once to see a garden of Roses grow to full beauty and dwindle to extreme unsightliness.—EDWARD LUCKHURST.

#### SPRING FLOWERS IN IRELAND.

THE present condition of some of the popular spring flowers out of doors may not be without interest, as indicating the effects of the winter on them:—

*Wallflowers*.—At this time last year I could have gathered a bouquet of these flowers, but now the double and semi-double Germans have been almost completely destroyed. I had two lines, one on each side of a central avenue, of double yellow grown from cuttings, and the other semi-double coppery brown. But little remains of either, though protected with high walls on each side, and in a southern aspect. Have any of your correspondents noticed in their collections that in several instances one branch remained quite safe, all the others being destroyed on the same plant? The singles seem somewhat hardier; but the gusty winds caught many of them while the soil was frozen and broke them at the base. Those that remain are now showing their flowers.

*Cheiranthus præcox* appears uninjured, and although later I have determined to have plenty of it in future. The question is well worth discussing—What is the best method of treating Wallflowers during the winter with the view to early blooming? Grown in boxes and placed in a cool vinery or orchard house as a friend suggests, would not meet the case, as 20° of frost has been registered in such houses, and heat is not to be thought of for Wallflowers that it is wished to grow robust and stocky.

*Polyanthus*.—These will be several weeks later than last year too, though some blooms have been opening for the past fortnight. They are, however, inferior in size and substance, probably owing to the inactivity of the roots; in fact they must have been several weeks in a state of torpidity. I had the more tender of the gold-laced and some seedlings under safe cover, but they seem no better than those exposed. The effectual frost-resisting mantle of snow is probably the explanation, and the same applies to all procumbent winter and spring flowers out of doors. After the snow had melted, dwarf *Silenes*, *Anemones*, *Limnanthes*, *Saxifraga granulata*, hardy *Primulas*, *Phloxes*, and some early bulbs all seemed quite fresh; even some *Turban* and French *Ranunculus* that had been forgotten. And stranger still, I had a bed of *Fuchsias* last year which I cut down early in autumn to help them to retain their vitality over the winter, and, with merely coal ash protection and by mulching, buds are already starting from the bases, though many persons have lost the greater part of their stock placed under shelves in cool greenhouses. With the same treatment I expect *Salvia patens* and *Marvel of Peru* are safe.

*Alpine Auriculas*.—Owing to their wonderful adaptability these should be grown everywhere and by every lover of hardy flowers. No other outdoor plants seem to have suffered so little. The cabbage-like foliage now looks promising, and this applies to named and edged varieties grown on specially made outdoor open stands. In my limited collection I never see green fly or woolly aphids, and I believe the secret is cool treatment and comparatively small pots. I find a great tendency to unsatisfactory growth from overpotting. I am not sure, though it may be want of taste, that I do not enjoy more the fine robust foliage, softly shaded colours, and generally delicious sweet scent of the Alpines to the more tender-edged varieties with their richer colours.

*Lilies*.—Except the advancing foliage on *L. candidum*, I am not aware of any outdoor Lily having sustained injury, except I include *Belladonnas*, which were seriously affected. *L. auratum* in peat beside *Rhododendrons* were out of the reach of any cold, and the same may be said of the *tigrinum* group. In a garden near here *L. giganteum* has been outside for years, and except for division *L. lancifolium* (*speciosum*) has not been touched, though it makes an excellent conservatory plant when coolly grown outside in pots. The *Martagon* group is safe, and deserves a place in every border. *Fritillarias* I grow outside, and lost some in a frame this year. Nile Lilies (*Richardias*) were killed when near the glass, even in sitting-rooms, and must have run serious risk planted out in ponds or beds of rivers. Late Brompton Stocks, *Pentstemons*, *Ixias*, *Sparaxis*, *Schizostylis*, *Babianas* are amongst the killed here; while *Pansies*, *Carnations*, the great majority of the *Antirrhinums*, *Eschscholtzia*, double *Daisies*, and bulbs, *Violas*, *Sweet Williams*, and hardy *Veronicas*, *Pinks*, *Pæonies*, and beds of *Primula japonica*, mulched are doing admirably.—W. J. M., *Clonmel*.

#### PROTECTING FRUIT TREES.

AS your Journal stands pre-eminent for forwarding the interests of fruit-growers, I should be glad to see a discussion in your columns as to the best methods of protecting the blossom during the next few months from the frost, which probably is alone responsible for diminishing annually by more than 50 per cent. the fruit crop in this country. Why should our orchards be cultivated in this nineteenth century on the same principles as to this matter as they were a thousand years ago? Surely the advanced state of art and invention might afford some efficient and practical plan at least to protect the smaller trees. The question of cost has hitherto been the difficulty. I enclose a sample of light jute netting (4 ozs. per square yard), only a very light web being requisite. Can any of your many practical correspondents show how to apply it to the purpose desired?—W. S. MANNING.

#### BLUE ROMAN HYACINTH.

I WAS glad to find on page 106 of the Journal that this Hyacinth has some admirers. In answer to "L." I may say that I am not a grower of flowers for the market, and therefore my remarks are not made from that standpoint. If "L." admires it, and the lady he has to please appreciates it, I should say, By all



means grow it. As a decorative plant it is useless in my estimation, and for that purpose cannot be compared with *Scilla siberica*, which is both pleasing in colour and compact, while the other is loose and straggling. With me it has proved anything but well adapted for forcing, and on that account possesses but little to recommend it. As stated, I have tried it for two years, and treated it in every respect as I have the white Roman Hyacinth and early kinds of *Narcissus*. The former I had in flower the last week in October, and the latter early in November and onwards. These were all over before a flower appeared on the blue Romans, which I endeavoured to bring forward under the same conditions. It has proved no earlier with me than such varieties as Charles Dickens and others. The old bulbs of such varieties that are grown in pots or those that are planted in the flower garden will, if taken care of and placed in pots, pans, or boxes, produce earlier and better flowers than the blue Roman is capable of doing. Many of the bulbs I had for early work did not flower this nor last year, hence my remarks on page 92. I may say in reply to Messrs. Jones & Sons, that had it proved of any use to me for forcing to supply blue flowers for cutting or decoration, I should have been the last to condemn it. Perhaps Messrs. Jones & Sons will give me further details when their bulbs were potted, when introduced into heat to have them in flower at Christmas, and the length and quantity of foliage when the flowers appeared? In foliage mine was very productive and straggling. I shall be very glad to pay Messrs. Jones & Sons a visit about next Christmas if they will kindly announce in the "Notes and Gleanings" in the Journal about that time when they have blue Romans in good condition.—CULTIVATOR OF BULBS.

#### GARDENING SCRAPS.

I HOPE you will think the following scraps worth a place in the Journal, as they may be useful, suggestive, or elicit serviceable replies:—

**BRUSSELS SPROUTS.**—A short time ago you did me the favour of publishing a few inquiries which I sent you about the best mode of treating and producing the finest Brussels Sprouts. Your pages show a very interesting expression of opinions on the subject, and I now wish to state a few observations of my own. Last summer or autumn some sheep got into a neighbour's garden and nibbled out the heads of the Brussels Sprouts. Those plants produced the earliest and finest sprouts I have seen, but then they were soon done and the plants died. Now those I have with the heads on have produced and are producing a good crop of sprouts, and will, I think, produce, as the same kind of plants have done in previous years, a most abundant supply of bloom shoots, which if cut and cooked just before the bloom expands is one of the most delicious and delicate vegetables that can be placed on the table. They should be tied in bundles, boiled, and sent to table as Asparagus is.

**FLOWER GATHERERS.**—Last summer I had given to me a pair of scissors, or more properly "flower gatherers," which when they cut the flower or spray of bloom off the plant hold it conveniently for the collector. Having to cut some Roses from plants against a wall higher than I could reach, I improvised a means of gathering them by splicing the scissors to the head of a fishing-rod, and working the cutting side by the line through the rings. May I ask if any of your readers can recommend any more scientific apparatus for gathering flowers off lofty plants? The scissors were stamped "Webster," but no address.

**MUSHROOMS IN PASTURES.**—I wish to impregnate a garden and field this year with Mushroom spawn. When is the right time for putting the spawn into the open ground, and at what depth?

**JERUSALEM ARTICHOKEs.**—If you wish to enjoy the true flavour of Jerusalem Artichokes, never have them dug out of the ground in which they are planted until the day you wish to eat them.—G. O. S.

#### FREESIA REFRACTA VAR. ALBA.

SUCH a charming plant as this unquestionably is can scarcely be too highly recommended, and when its merits are more generally known it will speedily become one of the most popular plants for the greenhouse and similar cool structures. Graceful habit, pretty flowers, delicious fragrance, easy culture, and quick increase constitute an association of good qualities amply sufficient to render any plant worthy of attention; but this *Freesia* possesses, in addition to those named, the valuable characters of producing its flowers early in the year, and of remaining attractive for many weeks. What more could be said in its praise?

From the beginning of the year several specimens have been

flowering in the house devoted to Cape plants and Heaths at Kew, and have been greatly admired by all who have seen them. One or two bulbs in a 60-size pot, with their narrow Iris-like leaves and spikes of white flowers, are seen to excellent advantage when the pots are arranged as they are there in the front of taller plants on a stage near the glass, and in a greenhouse among plants with brighter-coloured flowers a few potfuls would be most welcome. Larger size pots may also be employed, but I think the others are more suitable, and the plants thrive in them remarkably. A light turfy soil with a moderate proportion of sand and good drainage, will meet all the requirements of the plant, except that a season of rest is needed after the growth is completed to ripen the bulbs, which may be effected by lessening the supply of water and placing the pots in a position well exposed to the sun. At other times water may be given freely if the drainage be effectual. Increase is readily effected by separating the offsets from the old

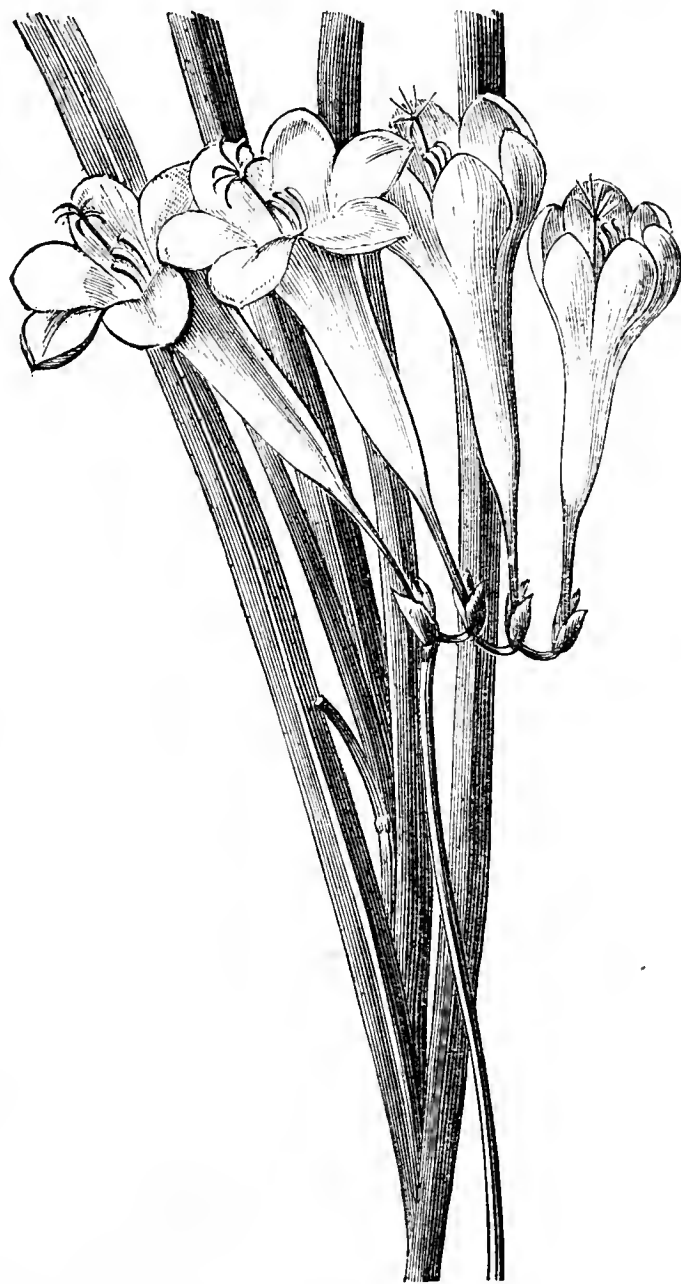


Fig. 39.—*Freesia refracta* var. *alba*.

bulbs when repotting them in early autumn, and in this manner a stock can soon be obtained.

The annexed woodcut fairly shows the form of the flowers, but it is difficult to do full justice to the plant by representing only a portion of its growth. The leaves are narrow and tapering, 6 to 9 inches long, arranged in a flattened manner like a diminutive Iris; the spikes are a little longer than the leaves, bearing near their summit three or four funnel-shaped flowers, with six roundish lobes; the tubular portion is about 2 inches in length, yellowish at the base, the limb being 1 to 1½ inch across and pure white. The fragrance is powerful yet delicate, compared by some to the odour of Primroses, which it certainly resembles, but with a little of the peculiar richness characterising the flowers of *Dendrochilum glumaceum*. The flowers last well when cut, retaining their fragrance until they fade, and a few will perfume a large apartment.

This variety, which is very distinct from the species, was first exhibited by the New Plant and Bulb Company at a meeting of the Royal Horticultural Society, July 2nd, 1878, when a first-



class certificate was awarded for it, and a similar award was also granted for it at one of the Royal Botanic Society's Exhibitions. Mr. Ware of Tottenham has a stock of the plant under the name I have employed, which is the one accepted at Kew.—L. CASTLE.

#### PRIZES FOR LABELS.

WILL you allow me to ask any of your readers who are using at all out-of-the-way plant labels, and all label makers, to send specimens as soon as possible to the Society of Arts, John Street, Adelphi? I hope the Society will get up a good exhibition, and then hand over the exhibits to the Royal Horticultural Society. The prize would have been offered through the latter Society had I not thought that in the Society of Arts many ingenious heads would be led to consider the subject for the first time, while in the Royal Horticultural Society most—or at any rate many—of the Fellows know by sad experience the want of a thoroughly satisfactory label; besides, as an old member of the Society of Arts Council, I knew the Society's influence and power of publication.—GEORGE F. WILSON.

#### NOTES ON BOILERS AND THEIR HEATING POWERS.

WHILE the severe winter is still fresh in our memory I write these few remarks, and while giving my own experience I desire that your readers will record theirs. More especially do I wish for the co-operation of your scientific correspondents in a few plain inquiries.

First, can anyone give me the difference in heating power of a Witley Court boiler with two flues, said to heat 1200 feet of 4-inch pipes, and a Wright's Endless Flame boiler to heat the same length of piping? By difference I mean, Which is the best for hard work and which is the most economical? I have had no practice with either of the above, but wish to ascertain all I can from practical men as to their utility. In setting, which would take the least depth? Is it advisable for the flow from any boiler to dip from the top of the boiler to enter the main, especially if I have several houses attached?

I found in practice this winter that a 4-feet saddle boiler with check bridge, which is estimated to heat 1000 feet of 4-inch pipes and in ordinary weather 1300 feet, will in severe time heat a lean-to Cucumber house 80 feet long with five rows of pipes on the surface and three under the bed, thus making 700 feet; and the same boiler heats one division of early vinery 60 feet long, six rows of pipes, say 400 feet of piping—1000 feet in all; the vinery at 55°, and the Cucumber house at 65°. To maintain this temperature with the chimney damper out 3 inches and the bottom doors open, requires attention at night every four hours in sharp frost. Apart from the question of extra labour and attention in firing, should I save by having larger boilers? and if so how much larger? My own idea is that a large boiler in temperate weather is not as economical as a smaller one. On the other hand, I believe that a fire which often needs replenishing wastes fuel. Supposing I had larger boilers, would this necessitate greater consumption of fuel?

In another case here I have a boiler of the same size and make to heat a Cucumber house 70 feet long with six rows of pipes on the surface and two under the bed, but this house is 40 feet from boiler, and can this be considered as good for heating as a house close to boiler? I have 600 feet length in this house. Now I am heating a span vinery 50 feet long with four rows of pipes, and another with one row only all round, this bringing it up with the mains to about 1000 feet. I cannot maintain the heat I require in this Cucumber house when the others are at work unless I keep up a very good fire; I therefore propose adding another boiler and connecting the whole of the boilers, so that I might work the three together in severe times or separately as required. I have a 50-feet span Muscat house and 60-feet early vinery unemployed, being afraid to trust to my present boiler power. I have houses at 40°, 60°, and 70°; but if it takes a good fire to get the heat when there is no frost, how must it be when there is say 20° of frost? To be safe I should suppose if a boiler is estimated to heat 1000 feet it would only work 500 feet in severe weather. This is the conclusion I arrive at. On the other hand, I again maintain a larger boiler than what is really required is not the most economical, and to overcome the difficulty a supplementary boiler would have to be added. To go a step further, I may say I consumed for about eighteen months, or rather from October, 1879, to this time, 80 tons of fuel in equal proportion of coal and coke. Perhaps some will say how this quantity agrees with theirs. On the coal and coke question I would say a few words. I like coal for very sharp weather, as it raises heat quicker than coke; but I find when the heat is up coke is the most powerful and lasting.

A ton of coke costs me the same as coals; which should give most heat? My mains are all smaller than inside pipes, thus 3-inch mains running into 4-inch pipes. Do your readers agree with this?

Briefly I sum up my case thus: I find the nearer the houses to be heated are to the boilers the quicker are they heated and the better is the heat maintained. A good boiler which heats a given number of feet of piping now, would in severe times require the assistance of another boiler; or, to put it in another way, Which is the cheapest to keep up—a 3-feet boiler to work a given number of feet of piping, or one, say, 5 or 6 feet? In one house I have a 2-inch main to it, and this always heats quickly, and there is little difference in the heat of the return and flow pipes; this I attribute to its quick circulation. I know it is not possible in all cases to do without long distances from boiler to house, but I maintain that the nearer the house to be heated is to the boiler the better it works, even though mains be eased and kept from the weather. I also find that one flow pipe running into two returns gives as much heat as two flows and two returns, the heat through the one flow seems to be so powerful.

How many of your numerous readers have been able this winter to make up the fires at 9 P.M., and leave them until 6 or 7 next morning? I have been told of one such instance this season, but in this case they must be well supplied with boiler power. Speaking from my own practical experience, and from what I have seen since 1859, I never yet was so fortunate to meet with such a case, nor did I ever see or hear of such until now. In ordinary weather, of course, I could do this, but not in the past severe winter. I might also ask if there be any who see no use for dampers in chimneys, as I am told they are not required, the draughts of the fire to be regulated by ashpit doors. I do not attempt to say which is the best form of boiler, nor do I wish to disparage any form. Doubtless there is no boiler but what the maker or inventor could work well and make it succeed, and another one would fail at the same boiler. I consider that not nearly so much care and attention is given to stoking as ought to be done; in many cases it is simply opening damper and doors and throwing on the fuel as necessary.—STEPHEN CASTLE, *The Vineyard, West Lynn, King's Lynn, Norfolk.*



WE have again to approvingly notice Miss E. A. Ormerod's annual production, "NOTES OF OBSERVATIONS ON INJURIOUS INSECTS," the report for 1880 having just been received. As usual it contains a large amount of useful information regarding the insects which infest the chief garden and farm crops. Descriptions of the habits of the various species are given, with particulars of the methods which have proved efficacious in destroying them, and as the latter are the experiences of practical men they are thoroughly reliable. The authoress cordially acknowledges the great assistance she has received from her numerous correspondents, and announces that the next report is likely to be on a much more extended scale, as contributors have so largely increased in numbers. It is also stated that a work is in preparation by the same lady upon the remedies and means of prevention for the attack of insects on food crops, forest trees, and fruit, which will undoubtedly prove of considerable interest and utility both to gardeners and farmers. We may remind our readers that the report we have briefly noted is published by Messrs. W. S. Sonnenschein & Allen, 15, Paternoster Square, London, and by Messrs. J. Menzies & Co., Hanover Street, Edinburgh, price 1s. All inquiries or information upon this subject should be addressed to Miss E. A. Ormerod, F.M.S., Dunster Lodge, near Isleworth; the Rev. T. A. Preston, Marlborough; or E. A. Fitch, Esq., Maldon, Essex.

— "D. L. M." states that he has had a charming display of Snowdrops in pots obtained by digging up some clumps of the single variety from the borders immediately the frost departed

and potting them. They have, he says, surpassed bulbs that were purchased and potted in November, and he recommends the above "simple mode of having charming masses of Snowdrops under glass."

— WE have received from Messrs. Ellwanger & Barry of the Mount Hope Nurseries, Rochester, New York, "A DESCRIPTIVE CATALOGUE OF SELECT ROSES," which possesses several distinct and commendable features. In addition to full and lucid descriptions of most of the best varieties, particulars are given of the parentage, names of the raisers, and the years when the varieties were sent out. For instance, under *La France* we have "(Guillot fils, 1867), raised from seed of a Tea Rose;" and under *Madame Lacharme*, ("Lacharme, 1873), a seedling from Jules Margottin." The catalogue is accompanied by a coloured plate giving good representations of *Coquette des Blanchés*, *Jean Liabaud*, *Climbing Jules Margottin*, *Alfred Colomb*, and *Marie Van Houtte*.

— IT is announced that the ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY will hold their Summer Show on Saturday and Monday, July the 30th, and August the 1st; the Chrysanthemum Show being fixed for November the 22nd and 23rd. As usual liberal prizes are offered in numerous classes, and with favourable weather no doubt the Exhibition will prove very satisfactory. All inquiries should be addressed to Mr. C. S. Fuidge, Secretary, 39, York Street, Lower Avenue, Southampton.

— A SPECIMEN of the beautiful RHODODENDRON COUNTESS OF HADDINGTON has for more than a month past been flowering in the greenhouse at Kew. It is one of the oldest of the hybrids, so admirably suited for cultivation in such structures, and is also one of the best, although it now has many formidable rivals. The plant, like many of its relatives, is not quite so compact in habit as might be desirable, but it forms a moderately close head when well grown, and produces its flowers very freely. These are borne three to six in a loose umbel, and have a bell-shaped corolla, which when fully expanded is 4 to 5 inches across. The inner surface is white, the outer tinged with a delicate rose hue; and the flowers further possess the additional attraction of an agreeable odour. The leaves are elliptical in form, about 4 inches long by 2 in width, slightly ciliated, and bright green. The plant is, we are informed, the result of a cross between *Rhododendron Gibsoni* and *R. Edgeworthii*, and is thus similar in its parentage to *R. Duchess of Buccleuch*. It was raised by Mr. Lees, formerly gardener to the Earl of Haddington at Tynninghame, East Lothian.

— THE Committee of the LIVERPOOL HORTICULTURAL ASSOCIATION have elected their officers for the ensuing year—A. B. Forwood, Esq., as President of the Association; W. B. Halhead, Esq., and Mr. Richardson were re-elected respectively as Treasurer and Chairman. It was decided to hold their annual Summer Show, as last year, on Saturday and Monday (Bank Holiday), July 31st and August 1st, as advertised in another column. It was also decided to hold a Chrysanthemum Show in November, of which due notice will be given.

— CONCERNING the WEATHER IN THE EARLY PART OF THE WEEK, Mr. B. Cowan writes from Durham—"Snow and sleet fell at intervals from Saturday and all day Sunday. To-day (Monday) snow has fallen incessantly all day, the average depth being about 5 inches, with strong N.E. winds." Mr. W. Iggulden writes from Somersetshire—"There was a rather heavy fall of snow on Sunday, much of it still remains. The thermometer stood at 18° on the night of the 27th, and on the 28th at 16°." In London also on Tuesday a minimum temperature of 23° was registered.

— AMONG useful cool-house Orchids ONCIDIUM CUCULLATUM is well known, and though certainly not one of the most showy

it is by no means to be despised. Several varieties are met with in collections, but one of the finest we have seen is now flowering in Messrs. E. G. Henderson's nursery, Maida Vale, where its superiority over the ordinary forms is clearly shown, as several are flowering in the same house. The sepals and petals are similar to the type, perhaps slightly darker in colour; but the lip is of unusual size, exceeding an inch in diameter, the spots being large and of an extremely rich purple tint.

— WE are requested to note that the HORSHAM ROSE ASSOCIATION will hold their fourth annual Exhibition on Thursday the 5th of July.

— WHILE passing through the house devoted to succulent plants at Kew one day last week our attention was drawn to *ALOE LYNCHII*, which was then flowering for the first time. It is a hybrid raised several years ago by Mr. R. I. Lynch, after whom it has been named by Mr. J. G. Baker, who has given much attention to these plants, and has recently made some alterations in the nomenclature of *Aloe* and allied genera. The hybrid named above is not only interesting from its appearing to combine the characters of the parents, *Aloe striata* and *Gasteria verrucosa*, in a very marked manner, but it is also very neat, and might even be considered pretty. The leaves are smooth, slightly curved upwards, 10 inches long, 2 inches broad at the base and tapering to the apex. They are in size and form very much like the *Aloe* parent, but they have a number of white spots upon a light green surface, in that respect being suggestive of *Gasteria verrucosa*, though not raised as in that species. In general habit the plant resembles the last named. The inflorescence is a panicle more than 2 feet in height, with spreading branches, bearing tubular flowers about an inch in length, light orange colour at the base, and the upper portion greenish white. The plant is very interesting botanically, and by no means devoid of attractions in a horticultural point of view. Mr. Lynch informs us that the seed-bearing parent was *Aloe striata* (*A. albocincta*) although several were crossed reciprocally.

— WE are informed that the GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY have fixed their Shows for 1881 to be all held in the Glasgow City Hall, on Wednesday the 30th of March, and the 7th and 8th of September.

— A CORRESPONDENT sends us the following note upon EXTENSIVE CUCUMBER CULTURE—"Mr. James Whittaker of the Prescot Nurseries, has just finished planting his new Cucumber house, which is 197 yards long, and contains eight wells of water. Some idea may be formed of Mr. Whittaker's Cucumber-growing when we state that in the season he sends from his nurseries over three tons weekly. In his new house he purposes constructing a tramway for running small waggons on."

— THE schedule of prizes to be competed for at the forthcoming Summer Show of the WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL SOCIETY has been finally settled, and will in due course be distributed. There are some important alterations made in it may be briefly mentioned. Three prizes are offered for a group of miscellaneous plants to cover a space not exceeding 100 square feet, open to all comers. There is also liberal provision for groups in the gardeners' and amateurs' division. The introduction of groups into the Show will no doubt render it more attractive. In the amateurs' division classes have been added for flowering Begonias and Coleuses, while the value of the prizes has been increased in the classes under each heading where practicable. Sir Trevor Lawrence, Bart., has consented to act as President, and has also offered a special prize for competition. The following gentlemen have likewise signified their intention of giving special prizes—viz., the Rev. J. M. Brackenbury; F. W. Parsons, Esq.; A. Schlusser, Esq.; J. F. Schwann, Esq.; R. S.

Dean, Esq.; J. J. Casswell, Esq. The Society also continues its prize for button-holes, and several other special prizes are expected. The Show will be held at Woodhays, Wimbledon; L. Walters, Esq., having generously placed his grounds at the disposal of the Committee. Any information on the affairs of the Society will be readily given by the Secretary, Mr. H. A. Rolt, Maud Villas, Gladstone Road, Wimbledon.

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 19. NEW SERIES.

THE moral force of a proverb sometimes quoted in favour of the habit of early rising, that "the early bird catches the worm," has been weakened by the insinuation that the worm must be up as early, or perhaps earlier than the bird, otherwise it would not thus fall a victim. By a wise natural provision there is a harmony, so to speak, between the movements of birds and those of the living creatures upon which many feed. Vegetable food falling short in



Fig. 40.—*Scolytus destructor* magnified.



Fig. 41.—*Tomiscus typographus* magnified.

the opening months of the year, birds of various species hunt eagerly after such insects as may be stirring, nor do they hesitate to seize and devour some of those hard-cased beetles which may seem to present uninviting morsels. Not a few insects also, beetles and others, are brought into view by the changes produced upon the soil by the frost or the rains, and their hibernation comes to a sudden finish. Many soft larvæ and pupæ are devoured in early spring by birds, by other insects, and even by slugs.

Proceeding with our notice of the weevils we reach a destructive family, the Otiorhynchidæ, so called from the ear-like appendages on each side of the short thick beak. Almost all the species here are injurious, and a large proportion of them are general feeders. About the bulkiest of them, and perhaps on the whole the worst as a foe to succulent plants, is *Otiorhynchus sulcatus*, a handsome species, its black and grooved wing-cases having a velvety down upon them. This appears during the summer when the female beetles, by night usually, deposit their eggs in the stems of plants

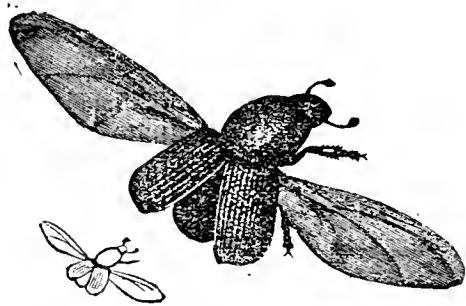


Fig. 42.—*Tomiscus typographus* flying.

just below the surface of the earth. The larvæ hatch out soon after—fat whitish grubs, minus legs, but armed with stiff hairs, by means of which they wriggle for short distances. Their proceedings go on through the winter, the larvæ thriving at the expense of the plants in which they are burrowing until May, when they are fully grown. *O. picipes* is also a pretty species. The larva is a subterranean feeder, but the mature beetle does greater damage than the larva generally, coming out in companies during April and May to bite the young leaves. This is less than the preceding, chestnut brown, and curiously marked with circular lines. To specify another of this family we take *O. tenebrius*, an insect that from its partiality to the Apricot has been termed the "Apricot beetle," a dusky black species, with the head, thorax, and wing-cases thickly dotted and punctured. Here again mischief is done both by larva and beetle, although it weakens rather than destroys the fruit trees it visits. Besides the Apricot all trees against walls are particularly liable to be affected; Vines are attacked in hothouses, where the larvæ are occasionally detected at the roots. Gardeners have already been

strongly advised to see all crannies in walls thoroughly closed, so as to afford no hiding places to the beetles. Special attention ought to be given besides to the base of walls that enter earth. Not only these beetles, but a variety of noxious insects, seek such positions during the colder months. It is odd that the last species should seem to have a preference for chalky districts.

The family of the Eirrhinidæ have received their Greek name from their lengthy beaks; amongst these is great variety in form, size, and habit. *Pissodes Pini* is a little Scotch species, having an egg-shaped body spotted with brown and gold; this resorts to Pine forests, the larva living in the trunks of trees, where it forms galleries between the bark and the solid wood. More generally diffused are the species of the genus *Anthonomus*, the larvæ belonging to which feed on flowers, as in the instance of the Apple weevil (*A. pomorum*). Less than a ladybird, this tiny beetle checks the development of much promising Apple bloom, the females being armed with long ovipositors, by which they deposit eggs within holes they bore into the calyx at the season of flowering. One egg is placed upon each flower visited. The result may be well described in the words of that skilled entomologist the late Edward Newman, who says, "The bud continues to grow like other buds, the perforation becomes invisible; by-and-by the egg bursts and out comes a little white maggot, which begins to devour the young and tender stamens; next to these the style is attacked and eaten down to the fruit, the upper part of which is quickly consumed; the maggot is then full-fed, it becomes a chrysalis, and lies perfectly still. For a few days yet the blossoms preserve their lovely pink colour, and then by degrees fade to dingy brown." When the beetles emerge later on they creep, on the approach of winter, under any heaps of refuse that may chance to be near the Apple trees.

In the genus *Balaninus*, nearly allied to *Anthonomus*, the beetles do not begin their operations quite as soon. Attacking usually the nuts of various trees, the females wait until the fruit has fairly set and the blossom fallen, when they pierce a hole with the long and curved beak. *B. nucum* is a great frequenter of the Filbert; this species is marked with brown and white, but these colours are derived from a down which easily rubs off, leaving the wing-cases black. The white grub of the nut weevil remains in the nut until it is full grown, when it nibbles an opening and descends to the ground, remaining a pupa through the winter. Hence it has been recommended to kill the adult larvæ and pupæ, by drenching the earth under the nut trees with an ammoniacal solution. The downy weevil (*B. villosus*) is even more downy than the preceding; this is happily not common with us, for its habit is to pierce the fruit of the Cherry in order to reach the stone.

The weevils that are placed in the family of the Cryptorhynchidæ have a beak bent downwards, and which is at times hidden by the insect in a groove upon the under side of the body. This is generally globular, and when one of these beetles "tucks in" its limbs, as they will, it has a close resemblance to a tiny seed. *Cryptorhynchus Lapothi* burrows in the bark of Willows, occurring frequently in large numbers, but it is considered that the injury they do is but small. Others in the family feed upon the leaves of Vetches, like the pretty *Orobites cyaneus*, with dark blue polished wing-cases. Notably injurious to grain are the species of *Sitophilus*, which includes the rice and corn weevils, and which have in some cases been sifted out of grain by the hundredweight. The damage is effected by the larvæ, which live within the grain, devouring the farina. The two species are nearly alike, but the rice weevil (*S. oryzae*) has four red spots on the wing-cases, which are absent in *S. granarius*.

The last family of the weevils have been separated by a few entomologists on account of their peculiar habits, though they have the usual beak (rather short), and also the elbowed antennæ. As they are all feeders upon wood they have received the name of Hylesinidæ. The best known of the family, and possibly the worst enemy of timber that is found amongst the English beetles, is that named *Scolytus destructor* (fig. 40), or occasionally the "Elm-destroying Scolytus," from its frequent appearance upon that tree. But it by no means confines its attacks to the Elm. This beetle is about a third of an inch in length; the thorax is large and punctured, black, as is the head, the wing-cases black or brown. The larva has very powerful jaws for its size, and a wrinkled body, which enables it to push along the grooves that it cuts along the wood. The channel made by the parent beetle is carried in for some distance, and after the eggs are laid the mother dies on the spot. Larvæ, pupæ, and perfect beetles may be found together towards the end of summer; the pupæ buried quite half an inch in the wood, the tunnel being blocked with fine particles. Doubtless *S. destructor* and similar beetles often complete the work of destruction commenced by caterpillars, such as that of the goat moth, and it is also more than probable that trees perfectly healthy are not touched by them. Allied to *Scolytus* is the genus *Tomiscus*, one species in which has



been called "the printer" (*T. typographus*) figs. 41 and 42, from the appearance of its tracks. In England, however, little harm is done by this insect; abroad, it specially injures Firs.—J. R. S. C.

#### REVIEW OF BOOK.

*Roses in Pots.* By WILLIAM PAUL, F.R.H.S. Fifth Edition. Kent & Co., Paternoster Row.

WHEN a work reaches a fifth edition no better proof is needed of its worth, nor of the popularity of the subject on which it treats.

It is stated in the preface that "the first edition of this little book was compiled from a diary of the author's observations and experience while practically engaged in the cultivation of Roses in pots, and was merely intended to meet the wants of a new phase of Rose culture. As successive editions have been called for, he has endeavoured to convert the original brief notes into more solid matter, and to convey such information as he may have gathered over a more lengthened period of practice. Roses in pots, few or many, are now seldom absent from any good garden; and while their culture is considered by some to be critical and

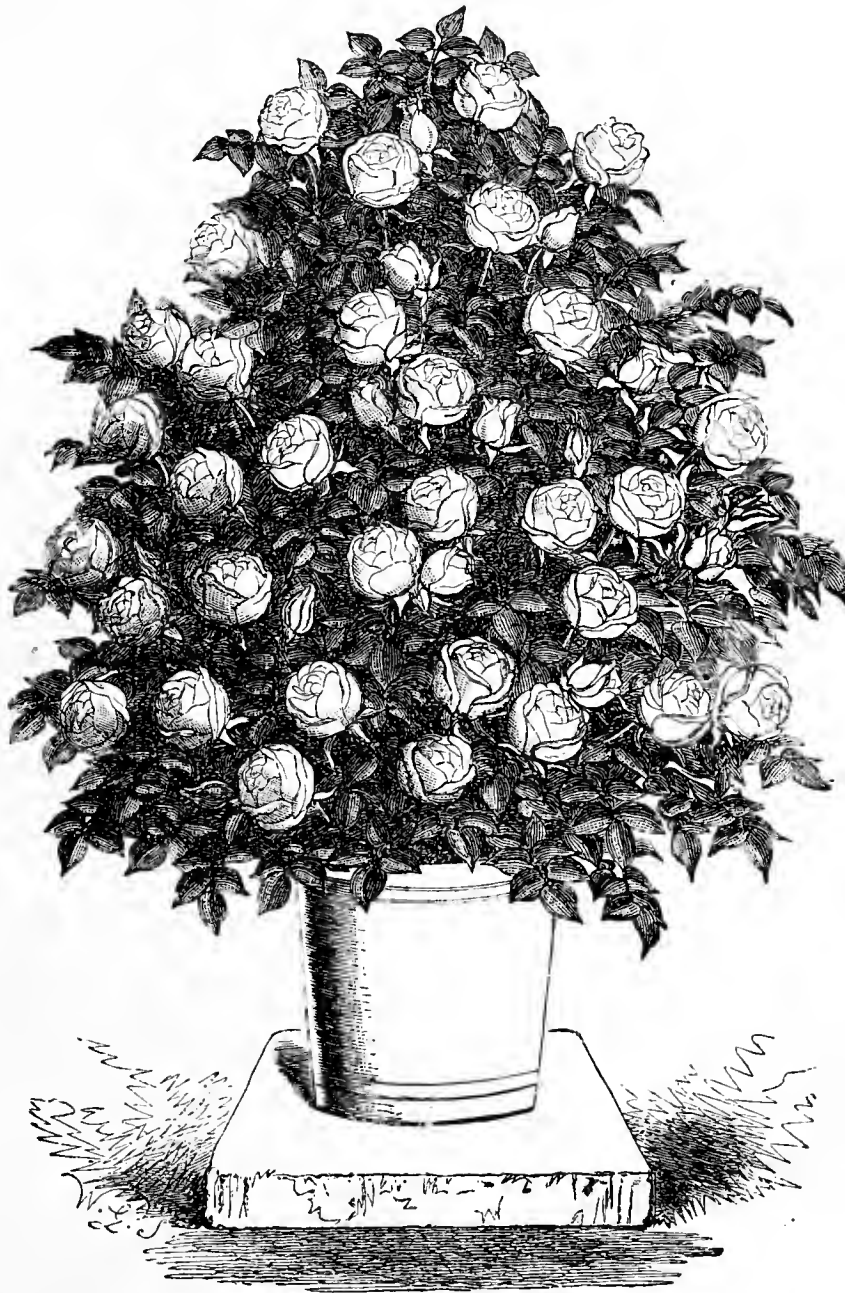


Fig. 43.—SPECIMEN ROSE.

difficult, the author believes that no plants are more easy to deal with, if their nature and requirements are studied, mastered, and reasonably attended to." What the "requirements" are for growing such a specimen as is shown on fig. 43, which appears in the volume, we are told in a clear plain manner that no intelligent cultivator can misunderstand. On the advantages of growing Roses in pots the author observes, "One great advantage of growing Roses in pots is, that they may be removed from place to place at pleasure when in bloom. Another advantage is, that by

this system plants may be had in flower throughout the year. Three sets of plants are requisite to accomplish this. The first, which are grown out of doors or in a cold pit, will flower from May till November; the second, which are retarded, will flower from November till February; and the third set, which are forced, from February till June." We also cite the following sound advice on the choice of plants:—"It is pretty generally known that some varieties of Roses thrive best on their own roots, and some as worked plants. Any, experienced Rose-grower will be

able to furnish the purchaser with information on this point should he need it. The ordinary-sized plants priced in the Rose catalogues are not always the most desirable. Rose-growers have usually on hand what are termed 'extra-sized' plants, and these, though somewhat more costly per plant, are really the cheapest in the end, especially for the inexperienced grower, or for those who wish to realise a good display at once. Supposing a given sum to be fixed on, it would likely prove more satisfactory to purchase a smaller number of the larger plants than a greater number of the small ones." Every phase of culture suitable for every class of Rose is detailed in the volume, and numerous illustrations are given that cannot fail to be of practical use to the cultivator. Choice descriptive lists of varieties are submitted as suitable for various purposes, indeed anything the author knows about growing Roses in pots (and that is a great deal) appears to have been told without reserve, and those who carry out the instructions given may hope to succeed as well as he has done. The engraving is no exaggerated picture of a specimen Rose, but is only a fair representation of what may be effected either in pots or in the open air, and with such examples of culture there is no wonder that Roses are popular and their culture still increasing. Incorporated with the work is the "autobiography of a pot Rose" in five chapters, which is alike entertaining and instructive. To all who are essaying the culture of Roses in pots we commend this volume of ninety-two pages, as we are convinced that it will be of much service to them, and prove a satisfactory investment.

### THE GREAT FROST AND ROSES.

FOLLOWING out Mr. George Baker's suggestion in his interesting articles on the subject, I am pruning this year a fortnight earlier than usual. I apprehend fully that extra time will be needed by Roses cut down within an inch of their lives, or at any rate within an inch of the ground, to make all the new wood required by exhibition time; I am, therefore, in a position to record the results of an investigation made upon Roses which have endured, with but a little fern protection, over 32° of frost. I am speaking now of bush Roses on own roots and Manetti. To mention those of which the pith is discoloured, as far as the pruning knife can get at them, would be to go through half a catalogue. I shall confine myself therefore to those where I have been able to find sound wood at last more or less near to the ground. Not many appear to have been killed absolutely outright except Teas, some Hybrid Teas, and Countess of Oxford. Though this variety appears specially tender it is interesting to observe an equally smooth wood of the same variety, Mdllc. Hippolyte Jamain bearing the ordeal far better. The others of which I am able to speak favourably are Abel Carrière, Alfred Colomb, Marie Baumann, Boule de Neige, Dr. Hogg, La France, W. W. Saunders, Ferdinand de Lesseps, Marie Rady, Charles Darwin, Madame Gabriel Luizet, and, I am glad to observe Madame Bellenden Kerr—this latter being a more robust variety of that most lovely but too tender Mdlle. Bonnaire. The turn of standards is yet to come.—A. C.



### KITCHEN GARDEN.

THE prolonged continuance of frost and snow has necessarily delayed many operations, which will considerably increase the number of those usually requiring attention under favourable conditions at this somewhat busy season, hence the necessity of executing preparatory work which can be done, such as having a good supply of Pea sticks, stakes, &c. To have a supply of new Potatoes from the open-ground at the earliest possible period is the object in most places, and for this a breadth of early varieties, such as Veitch's Ashleaf, Early Bird, Myatt's Prolific, or similar sorts should be planted when the soil is in a fit state, choosing a warm south border or other sheltered situation. A row planted at the base of a south wall where protection is afforded the trees will accelerate the lifting ten days or a fortnight. Potato sets should be laid out singly in a place where frost is merely excluded, and not only cool but moist, in which the tubers will keep firm, making but little growth and that of a sturdy nature.

### FRUIT HOUSES.

*Pines.*—Start a batch of suckers which are intended to furnish plants for a supply of fruit at the end of the year onward through the spring and early summer months. Prepare the materials required for potting, and the fermenting bed in some close structure to maintain a temperature of 80° to 90°, and where great fire heat will not be necessary to secure a temperature of 55° to 65° with regularity. The best developed plants selected at the beginning of last December and forwarded by an advanced temperature have fruit showing; and as it is desirable to advance the ripening of these as much as possible the temperature should be maintained at 65° to 70° at night, and 5° to 10° more under favourable conditions by day, ventilating as before advised, economising fire heat by making the most of sun heat. As the fruit advances the plants will require more water at the roots, examining other stock once a week. Recently started plants intended to form a succession to those above named must not be brought on too rapidly; 65° at night and 70° by day will be sufficient.

*Vines.*—The weather has been most unfavourable for early forcing; cold easterly winds, no sun, and snow very frequent. Keep up a good supply of moisture in the early houses, having the evaporation troughs filled with guano water, and sprinkle available surfaces in the house in the early part of the afternoon. Vines in flower set best when the atmosphere does not contain too much moisture, ventilating whenever external conditions permit, and closing early with sun heat. Shy-setting varieties when in flower should have the rods shaken two or three times a day to aid fertilisation by distributing the pollen, or dust over the bunches with a camel's-hair brush or plume of Pampas Grass. Fruiting Vines in pots must not receive a check through dryness of the soil or want of nourishment. Liquid manure may be liberally supplied, providing it be tepid and not too strong. Those Vines that have the roots extending from the pots into fermenting material should have moisture given them there as well as in the pots. Vine eyes inserted as previously advised will now be rooted, and should as soon as the roots reach the sides of the pots be shifted into 6-inch pots, placing them on shelves over the hot-water pipes in preference to plunging in bottom heat. Syringe freely amongst them, and pinch out the lateral growth as produced, unless required for planting out this season, when all growth should be retained. Muscats, Lady Downe's, Gros Colman, and other late varieties may now be encouraged, as they require a long growing season to ripen the Grapes thoroughly, for unless ripened by September they will not keep well. Little advantage will be gained by covering the outside borders with fermenting materials after this period, but means of throwing off heavy rains or snow will be beneficial. The internal borders should be thoroughly soaked with water or liquid manure at 90°. Complete the preparation of late vineries, washing the glass and woodwork, dressing the Vines, and removing the loose surface soil from the border and supplying fresh, for as a general rule all houses should be started not later than the beginning of April.

### PLANT HOUSES.

*Greenhouses.*—Camellias that flowered in the autumn are now growing, and should have a temperature of 55° at night and an advance of 10° to 15° by day, plenty of atmospheric moisture, and slight shade. Plants in flower should be shaded to ensure their greater duration. Straggling shoots should be cut back to keep the plants in shape, the best time being immediately after flowering. Any potting required should be attended to at the same time. Avoid overpotting, and provide efficient drainage. Hardwooded plants requiring more root space should be attended to at once, as the plants have then a long season of growth. Young plants will first require attention, commencing with those active at the roots. See that the soil is thoroughly moist before potting, and press it very firmly. Keep the plants rather close, not ventilating at the side of the house for a few weeks, and keep the shelves and other available surfaces well moistened, especially in bright weather. Good fibrous peat with about a sixth of crystal sand for the strong-growing kinds, or silver sand for the more delicate-rooted varieties, is a suitable compost. Do not disturb the roots more than is necessary to remove the crocks from the base of the ball, and any plants that are very much root-bound

must only be given a small shift, but healthy plants will need pots that will admit of an inch to 2 inches of fresh soil around the balls. Young plants should have the flowers removed. Azaleas, such as A. Borsig, Narcissiflora, Reine de Portugal, and others that have been forced early, should, when the flowering is over, be placed at once in a warm moist atmosphere, so as to continue the growth that was excited by placing them in heat, and enable them to continue the disposition to bloom early, acquired through early forcing. The general stock, from being more active at the roots, will require an increased supply of water, and by no means allow the atmosphere to become too dry. Acacias and other description of New Holland plants will show greater need of water, and should have more copious supplies, as when flowering or advancing thereto the roots are more or less active. Lapagerias requiring more root space should be shifted into larger pots, the plants doing well either in turfy loam or fibrous peat, it being essential that it be lumpy; and good drainage must be afforded, as very copious supplies of water are necessary.

Roof climbers, such as Passifloras, should now be spurred well in to within an eye or two of the main rods, cutting back extensions to well-ripened wood. Tacsonias should only have the growths well thinned out, removing the old and weak, encouraging the vigorous and young in their places. Assist Habrothamnuses advancing for flowering with weak tepid liquid manure, affording similar assistance to Roses planted out, mulching with short manure. Clematises employed as climbers or pillar plants should only have the growths thinned out, and, whether grown in pots or planted out, should be assisted with liquid manure. Admit air freely upon all favourable occasions, commencing at 50°, fully above that temperature, and close at the same. Hardwooded plants should have ventilation freely above 40°.

## NOTES ON VILLA AND SUBURBAN GARDENING.

### KITCHEN GARDEN.

*Cauliflowers.*—The late severe frosts have in many districts completely destroyed exposed vegetables, and they are likely to be scarce for some time to come. Some preparation should therefore be made to forward a few in frames and pits, and also to raise plants to replace those that are lost. Broccoli especially is much injured; and as many growers have lost their stock of autumn-sown Cauliflower plants, unless some of the early varieties of the latter are sown at once the break in the supply will be a lengthened one. Suitable varieties are either Carters' Extra Early, Veitch's Dwarf Forcing, and Dean's Snowball, and failing these Dwarf Erfurt and Early London. Sow the seed thinly either in a pan or box, using fine light soil, which should be kept moist, though not saturated, and place in a gentle heat. When the seeds have germinated elevate to near the glass, and give air as much as circumstances will permit. The seedlings when in rough leaf may either be pricked-out in boxes, or be potted singly into 4-inch pots, and as the stems are certain to be somewhat drawn they should be buried up to the seed leaves. Keep the plants growing steadily, hardening-off before they are crowded, the aim being to secure sturdy plants to put out on a warm border, or at the foot of a south or west wall early in April. If either of the new early varieties recommended are grown, the produce will be fit for use nearly as early as that of autumn-sown plants usually is. To maintain the supply more seed should be sown on a slight hotbed with or without glass protection, in the latter case substituting mats, and the young seedlings may either be transferred direct to the ground or be pricked-out in a warm position. Those who possess a batch of autumn-sown plants will do well to pot some of the strongest into either 4-inch or 5-inch pots, placing them in little heat till established, hardening-off and planting out on a warm border before they are become rootbound. The remainder of the batch will thus receive more space, and later on may be planted out in a good open position, protecting when necessary in each instance with either branches of evergreens or inverted flower pots. Well-hardened Cauliflower plants are proof against a rather severe frost, but if planted early and without much hardening are very liable to be much injured.

*Lettuces.*—Those who fortunately have a stock of autumn-sown

plants may soon thin them out freely, planting the thinnings on warm borders, and these will succeed those undisturbed in the frames or otherwise. The very latest sown plants appear to have been most hardy; and as these are very small, and in some instances are standing thickly where sown in the open, it is very advisable to carefully lift and prick-out the strongest in a warm position in the open, and the weakest into boxes, placing these in a cold frame for a few days, small plants being almost invariably destroyed by insects. Those who are without plants should sow seed at once, and treat as advised in the case of Cauliflowers. Potting-off, however, is unnecessary, as Lettuces can be readily moved from boxes or beds. The Early Paris Market and Suttons' Brown Forcing are quick-growing Cabbage varieties, and if seed of All the Year Round Cabbage and the Paris White Cos be sown at the same time the supply will be maintained.

*Peas.*—The earliest sowing of these ought now to be made on the first favourable opportunity. Nothing, however, is gained by sowing very early this season owing to the saturated state of most soils. In very heavy soils if seed must be sown it is advisable to shovel out the drill, working in some fine light soil below and above the seeds. Those who have the convenience are advised to sow seed of an early variety in pots or boxes as recently advised in the pages of this Journal, or they may sow in boxes with the fine soil divided with strips of brown paper. In four boxes 2 feet long and 18 inches wide sufficient Peas may thus be grown to plant a few short rows equal in length to about 12 yards. From these rows good early pickings may be obtained. The seed of the successional crop to be sown on the first favourable opportunity, and if possible near to where those raised in a little heat are to be planted. Place the rows of such varieties as William I., Ringleader, Sangster's No. 1, Caractacus, Dickson's First and Best, 3 feet apart, and between these either plant single rows of autumn-sown Lettuces or sow rows of Spinach. Stakes are not absolutely necessary for Peas, though they are to be preferred in small gardens. If they are to be grown without stakes the soil should be rather poor and firm, and the seed be sown thinly in drills 30 inches apart. Any of the above varieties are suitable.

*Broad Beans.*—It is also the proper time to sow for an early crop of these. The variety recommended is the Early Longpod, and the seed of this may be dibbled-in in lines 2 feet apart and 4 inches asunder in the lines.

### HOTBEDS AND FRAMES.

Those who have fermenting material and deep box frames or pits suitable for Potatoes should at once commence forcing. The fermenting material being well prepared may be made into a bed about 3 feet deep at the back, with a good slope to the front. Place on frame and lights, and if in the course of a few days the heat is found to be moderate—that is to say, if the trial stick inserted when the bed was made can be comfortably borne in the hand, the soil, which should be light, may be placed on to a depth of about 9 inches. The sets are generally sprouted in gentle heat to gain time, and where this is done they should not be planted till the soil of the bed is warm. Open good drills up or down the bed about 15 inches apart (usually three drills to a light), and 6 inches deep. Rub off all side shoots, leaving only the strong central sprout of the sets, and press the latter into the drills about 8 inches apart. Earth over with the hand to preserve the Sprouts, level the surface of the bed, and sow seed of an early Radish thinly and rake it in. The frame may be kept close till the latter has germinated, when air should be given on all favourable occasions more or less according to the external temperature. Cover the frames during the night with mats or litter. Suitable Potatoes for forcing are Veitch's Ashleaf, Mona's Pride, and the old Ashleaf. The Radishes (none being better than Wood's Early Frame and the French Breakfast) will be pulled before much growth has been made by the Potatoes, and both crops are profitable.

*Carrots.*—A shallow hotbed is sufficient for these, and two lights will grow a good quantity of sweet and tender roots. If the frame is either deep or shallow it is advisable to firmly fill it to within 6 inches of the top with the heating material, finishing off with fine sandy soil. The shallow drills for the seed may be 8 inches apart, and between these a row of early Radishes may be sown. One of the



Early Horn varieties of Carrots should be sown, and the crops will not be injured by the Radishes.

## THE BEE-KEEPER.

### THE STEWARTON HIVE.

THOUGH much has been written about the Stewarton hive, and though it has for many years been strongly recommended, very few bee-keepers have seen it, and fewer still understand the principle of the hive or its mode of management. About forty or fifty years ago Mr. Nutt introduced and recommended the collateral box hive. It did not answer to his representation and speedily fell into disuse. The Stewarton hive is not likely to follow a similar course, for those who use it and understand its management find it succeed, and some think that it is unequalled. This is true in one sense certainly—viz., that it is unlike all other hives in construction and mode of working. It is unlike the bar-frame hive, as no alterations or improvements are sought or required, whereas the bar-frame hive is only advancing to perfection. Last year Mr. Anderson of Dalry reported in this Journal that a Stewarton hive and its swarms rose in weight to a gross total of 481 lbs. Such success is enough to commend the hive to the consideration of apiarians of every class.

It is difficult to give a comprehensive and adequate description of the Stewarton hive. It is made of wood, in six separate parts, 14 inches wide, and octagonal in shape. The three bottom boxes when placed on one another are called breeding boxes, and are each 6 inches deep. The second three boxes, 4 inches deep, are honeycomb boxes or supers. All the six boxes constitute one hive, and when they are all in use a Stewarton hive is 30 inches deep or high, and is in this state first-class for work. Every honey season for the last fifteen years we have had records of the results of the Stewarton hive, and they have been most satisfactory and encouraging.

All the boxes, both breeding and honey boxes, have bars across their tops, and are without lids or crowns. This is their great peculiarity. When two or more boxes are placed together slides running in grooves are pushed between the bars of the topmost box, and these with the bars make the crown of the hive. If the hive is eked from below the slides remain in the topmost box, but if eked at the top by giving it one or more honey boxes the slides are withdrawn from the breeding box and run in between the bars of the top honey box: the slides of course must always be used in the topmost box. Let the reader observe that when all the six parts of the hive are buttoned together we have a house or hive six storeys high without separations or complications—without floors and partition walls. The bars of the boxes are thin and hardly form a separation between the boxes; the bees can travel from the bottom to the top throughout the whole breadth of the hive as readily as if there were no bars. The utmost freedom for work is given in a Stewarton. The Nutt hive had what the Scotch people call a "butt and a ben," and the bar-frame hive has in supering a kitchen and an attic; but the Stewarton has not a butt and a ben, neither has it a room below and a room above with a staircase and doorway between. A Stewarton hive is really a great workhouse and storehouse united without complication or separation. This arrangement is admirable, and facilitates indoor labour.

Some advocates of the Stewarton hive hold that one of its great advantages consists in its power of preventing free access from breeding boxes to honey boxes, especially of the queen. Slides employed in the centre of the hive, between breeding boxes and honey boxes, it is said prevent the queen going into the supers to lay. If one or two slides are kept out, at the outside combs, we are told that the bees find their way to the supers with honey, but the queen does not with her eggs. This statement has no weight with me. If the queen wishes to go to the super she would take the roundabout way as well as the bees; and if the bees resolve to set eggs in the honey boxes of Stewarton hives they would pare down the honeycombs to the proper thickness of brood comb, and take eggs from the bottom boxes, carry them aloft, and set them there, the working bees being the prime actors in this matter. The bees of a Stewarton hive are wintered in two breeding boxes. As soon as these are filled with bees in spring a third breeding box is given below, and when the third box is full supering commences by using the honey boxes above. In autumn the honey is taken and the bees confined to two of the three breeding boxes. This hive is meant to be managed on the non-swarmer principle. In every

good season for storing honey beautiful octagonal supers taken from Stewarton hives are exposed for sale in the shops of Glasgow.

This hive can be managed on the swarming system of management as well as any other hive, and probably as experience is gained the swarming system will be most followed where Heather is available. The readers of this Journal would notice that the grand result of a total of 481 lbs. from a Stewarton hive was reached through the swarming system of management. Though I do not use the Stewarton hive, and though I know well that straw is a better material for hives than wood, especially in winter, I like to speak well of this hive, which has done, and is likely to do, excellent work; and I shall be pleased if the Stewarton hive becomes more extensively known.—A. PETTIGREW.

### CALENDAR OF OPERATIONS IN THE APIARY.

#### MARCH.

IN our fitful climate temperature and other conditions vary so much that the advice given in books, though wise and right, perhaps, for the average, may be wide of suiting the particular season through which we are passing. I purpose, therefore, giving monthly some hints with the object of guiding the inexperienced, and preventing the advanced from overlooking now and again matters, which if not done to time can often not be done at all to any purpose. We have passed through a very cold period, during which the bees have been long confined to their hives, and so soon as the wind shifts and the thermometer rises to about 50°, permitting our bees to fly freely, we should overhaul our stocks to ascertain their condition, and supply whatever may be found to be essential.

FLOORBOARDS of skeps and frame hives both should be cleared of wax *débris* thrown down during the uncapping of honey cells (to secure their contents for food) during the winter, as this *débris* holds moisture, and would if unremoved give hereafter a secure nidus to the wax moth. Dead bees must also be cleared out, but if these be found in any considerable number we must suppose that our hives or our methods are at fault. Beyond here and there a stray bee no dead are found in my stocks, except in one case where I removed about one-third of a pint on Saturday, February 26th, this arising as I feel sure from the driving snowstorm of January 18th, as the mouth of the hive had only the ordinary slip door and faced direct east. FLOUR CAKE\* will now be useful if given in the feed hole of skeps or under the quilt of frame hives. Those who possess stocks in skeps without an opening above suffer a disadvantage which may be overcome thus:—Take a piece of flat thin board about 6 inches square, and cut a round hole in its centre  $1\frac{1}{2}$  inch in diameter, and put over this a square of perforated zinc with fine holes. Add a hole at each corner for a screw, of which four long ones will be required. Arm yourself now with a roll of brown paper about 1 inch in diameter and set this smouldering. A roll of corduroy will be even better. Now proceed to cut with a sharp knife the necessary hole in the skep, keep your bees in check with the smoke, and proceed quietly, when you need fear nothing; cut your hole cleanly, remove all ragged pieces, and now put a ring of clay previously made ready round the hole. Over this press your board and turn your screws into the straw. You will thus get a convenient little stage for a super and all facilities for feeding. If you have no clay use dough, but be careful to prevent all leak of hot air between the board and the skep itself, as such would reduce the prosperity of the stock considerably. An inverted bottle with or without muslin over its neck can now be used; but when the bottle is not on, cover the zinc with some thick pad for a reason which the necessity for the clay explains. In giving liquid food it is desirable (unless the very slow method is followed) to put the bottle on at night and remove it in the morning. Stocks in frame hives may at this time be most advantageously fed with combs of sealed store put in reserve in the autumn when the bees had their frames reduced in number. In order that these frames may stimulate to breeding, scratch the sealing of the honey with a pin (four or five scratches on a comb), when the bees will remove the contents from every cell the cover of which is injured, and this will act upon the stock as though store was being gathered in the natural way.

Contract the frame room rather than expand it for stocks in frame hives unless, indeed, they are very strong. Their greater heat will promote breeding, and secure an army of foragers by the time honey begins to flow (the very matter upon which almost all hinges).

ARTIFICIAL POLLEN may be given now with the greatest advantage when the weather admits of free flight. Pea flour is more useful than Wheat flour, but either will do. Place the artificial pollen in trays or boxes, or inverted skeps, slightly covering it with chaff, or sprinkling it very thickly upon loose shavings. It will require renewal during the day if the bees take it well. Expose it to the sun, and screen from wind and rain.

Warmly cover above their frames every stock. The foolish idea that bees do as well if poorly as if thoroughly protected can only be held by those who have never seen the results of really good management in this direction.

\* The recipe for flour cake has been previously given. It consists of sugar boiled carefully with very little water. Into this flour or pea flour is stirred, when it is poured into moulds to set.

Snow with sunshine is now a greater occasion of risk than during the dead of the winter. The bees are more earnestly looking for a chance to be abroad and the sun rays are stronger. Shade the fronts of the hives, or make and fix the porch I recently recommended, which will save from this and other troubles.

Borage may be sown now along the hedgerows, and will, perhaps, thus permanently establish itself to the great advantage of our bees. Sunflowers may also have a spare patch devoted to them, when they will help us greatly in our efforts to promote autumn breeding, as their natural pollen furnished late will, together with our syrup, keep our bees well up to work, and these same Sunflowers to those who may happen to be poultry fanciers furnish an abundance of seed of which young chicks are extremely fond. QUEEN WASPS if the weather grows warmer should now be looked for; and since each queen starts a nest and may possibly become the progenitor of a whole horde of pests, pains should be taken to destroy them. They can often be disabled by the finger popped upon them as they are filling at our syrup bottle; but failing this bring them down with a garden syringe, and then destroy them. Hives should now be got into readiness. It is my plan to keep a few in excess of my wants, and at this time to change my stocks into those that are clean, dry, newly painted, and fit to stand for a long period without going into dry dock. The dirty ones then, in the absence of the bees, can undergo any necessary renovation.

The one necessity for March is *promotion of breeding*, and regular, slow feeding; artificial pollen, warmth, and crowding where possible, will be found to be our right-hand assistants.—FRANK R. CHESHIRE, *Avenue House, Acton.*

#### TRADE CATALOGUES RECEIVED.

Edward Webb & Co., Wordsley, Stourbridge.—*Illustrated Catalogue of Farm Seeds.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Farm Seeds for 1881.*

Ellwanger & Barry, Mount Hope Nurseries, Rochester, N.Y.—*Descriptive Catalogue of Select Roses.*

W. Lovell, Weaverthorpe, York.—*Select List of Strawberry Books.*

Francis and Arthur Dickson & Sons, Chester.—*List of Select Farm Seeds.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Address (H. B. and R. I. L.).**—Mr. Adie's address is 15, Pall Mall, London S.W., from whom you can obtain the particulars you require.

**Transplanting Box Edging (H. B.).**—Just as fresh growth is commencing in the spring is a good time for replanting Box edging. This is usually about the latter end of the present month or the beginning of April, according to the season and district. You may cut the dead wood from your Roses at any time now.

**Apples for Succession (J. S.).**—It is impossible for us to place the varieties you have named in the order of merit, as all of them cannot be judged by any one standard. Each have qualities of their own, and all the varieties are worthy of cultivation and suitable for your district. Instead of attempting to arrange them in the order of merit we will place them somewhat in the order of ripening. *Dessert*—Irish Peach, Devonshire Quarrenden, Cox's Orange Pippin. *Kitchen*—Lord Suffield, Keswick Codlin, Cellini, Ecklinville Seedling, Warner's King, and Dumelow's Seedling; but the two latter are practically in use during the same period. As a rule Apples are better adapted to the bush than the pyramid mode of training.

**Zonal Pelargoniums Charles Smith and Charles Schwind (P. R., Wigan).**—You variety described on page 150 last week is probably Charles Smith; as the name was not written plainly, and as the description applied equally to Charles Schwind, we concluded it was that variety. Mr. C. E. Pearson of Chilwell informs us that "the two varieties are distinct, though both crimson, Charles Smith being sent out one or two years before Charles Schwind, which is a shade darker in colour than the former. We have not tested them for winter blooming, but for summer work they are superseded by Rev. A. Atkinson for bedding, and Henry Jacoby and Dr. Orton for pots."

**Cinerarias (E. W. B.).**—On a first glance at the sprays we thought the plants had received a check or been infested with insects; a closer examination, however, indicates that the growths are clean and healthy. The flowers are amongst the smallest we have seen, and if they fairly represent the "strain"

we must pronounce it worthless. Your plant is *Helleborus foetidus*; it is very hardy, and useful for furnishing vases in the open air during the winter.

**Plants Around a Pump (R. N.).**—You will scarcely find a more suitable plant than *Lysimachia nummularia* for the purpose named, as it grows quickly and would thrive in such a position, while few other plants would live.

**Disbudding Vines (J. M. B.).**—You pruned your Vines correctly, and you are adopting a wise course by deciding to have the lateral growths thinly disposed on the main rods. Overcrowding of the spurs and laterals is a fertile source of small imperfect foliage and small fruit. With the Vines 4 feet apart and their growth vigorous we should have the laterals about 18 inches apart on each side of the rod, an inch more or less not being important. We should not, however, disbud the young Vines at once to the extent indicated, as an accident is always liable to occur during the early stages of growth, and to lose a lateral after the final disbudding would leave a gap that would not be easily filled afterwards. The laterals may be left for a time at 9 inches apart, indeed during the present season, letting them make all the growth possible without overcrowding, as this will encourage root-action. You may remove the superfluous laterals at any time where there are signs of overcrowding, or in the autumn.

**Hyacinths in Glasses—Offsets (Amateur).**—They are of very little use for pot culture next year, yet with care the bulbs may produce small spikes that are acceptable for cutting. Immediately the flowers fade the spike should be cut, the plants being removed from the glasses and potted in very light compost, such as leaf soil and cocoa-nut fibre refuse, and placed in a cool frame to perfect good foliage. They should be watered regularly until the foliage shows signs of decay, and then less frequently. With good foliage and light to mature it the bulbs may be of some service another year, four or five of them being placed in 5-inch pots to produce miniature spikes for cutting. If good foliage is not produced this year and kept healthy as long as possible flowers cannot be expected next year. The time that offsets of Hyacinths require to become flowering bulbs depends entirely on the culture that they receive. In poor or heavy soil and a cold position they may be four or five years; in rich light soil and a warm position they arrive at a fair flowering stage in half that time. We are unable to state the cause of your Tulip bulbs withering; we have known them wither if the pots and plants have been covered too long with ashes or other material that was placed over them in the autumn.

**Tuberose (Salepian).**—We cannot better reply to your questions than by quoting the remarks of Mr. W. Taylor which appeared in vol. xxxviii of this Journal. "The imported bulbs are received in December or January, when they are at once potted singly in 6-inch pots and plunged where they can have the benefit of bottom heat to start them into growth. After they once start fairly they can be grown in a low temperature and without bottom heat; and when all danger of frost is over, if they are not wanted to flower early, they can be placed in a deep cold pit and be merely protected from the worst of the weather till the flowers commence opening, when they will be improved by being taken into the greenhouse. Plants so treated will generally flower some time between July and October. After flowering most people throw them away as useless. This is quite a mistake, as I will endeavour to prove. Mine are at once shifted into 7 or 8-inch pots without disturbing the ball, using a good rich compost consisting of turfy loam with a little decayed manure, a few half-inch bones, and a little charecoal. They are again placed in a warm house and soon commence throwing up shoots, one of which only is left to grow, and it soon forms a new bulb on the top of the old one, which will not fail in its turn to send up a good strong flower stem. I have no doubt that the small shoots which are taken off would, if liberally grown, soon make good plants. I have already grown some of them this way, and was not aware that it was an uncommon thing to do; but I have kept no notes concerning the time it takes, yet I am under the impression that some of them flower again during the following winter. I will try to make my meaning plain. The Tuberose shortly after flowering generally dies quite back, leaving nothing visible above ground excepting the top of the bulb. This period should not be hastened by removing the flowerstem or withholding water while there are healthy leaves on it, but it should be allowed to die back naturally, and water should not be altogether withheld, even when there is no visible growth. I pot them at this time without disturbing the roots or any part of the plant, and place them in a little warmth. They soon commence growing by forming several little bulbs on and near the top of the old one. If all were left of course they would grow weakly; one only is left, and it rapidly enlarges, having the roots of the old bulb to supply it; the rest are picked off with the finger and thumb, and may be potted and grown in the same way as little *Amaryllises*. I have succeeded best so far with the bulb which remains on the top of the old one. Probably the young bulbs would take two years to grow them to a flowering size, but I have kept no memoranda on this point."

**Sea Gulls in Gardens (Heather Bell).**—Although the narrative of your bird is interesting the great pressure upon our space prevents us publishing it. We have had long experience of the utility of gulls in gardens, as they devour worms, slugs, grubs, and insects with avidity. The birds also become very tame, and attach themselves to those who feed them, for they require feeding during very dry weather in summer, and especially during severe weather in winter. When the frost is very intense it is desirable to afford them some shelter. We are intimately acquainted with one of the few "homes of the gulls" in England. The birds arrive in early spring, lay their eggs on the margin of a secluded piece of water, rear their young, then migrate to the sea, living on fish during the winter. In the breeding ground to which we allude there are countless thousands of these pretty birds (the black-headed gull), and they are of great benefit to the district, as for some miles around they are in every field in which ploughing is being done, every furrow being crowded with them within a foot or two of the ploughman's heels. From those fields they must take millions of grubs and insects. When kept in gardens they search diligently after similar food, and do not in the slightest degree injure any crops. Suitable food for the birds during winter is raw liver, and scraps of refuse meat of almost any kind.

**Dressing Trees with Brine and Soft Soap (F. S.).**—The following are the instructions in the "Gardeners' Year Book," to which we presume you refer:—"During the dormant months of winter every means should be resorted to for destroying the eggs and larvae of insects that are injurious to the trees during the period when vegetation is most active, and as these always harbour on the bark and in its crevices there is no season of the year when their haunts can be so easily invaded and the enemy dislodged as now. For this purpose, then, remove all filth and excrescences from the surface of the bark, such as the old scales, moss, and lichens, with a blunt scraper, such as an old knife or a piece of hoop iron, for it is on these that the pests mainly harbour; then wash the stem and branches well with a mixture of brine and soft soap, applying it with an old painter's brush, and rubbing it well into the crevices. Walls also, and particularly old ones, are capital harbours for insects. Where they are so old as to require fresh pointing this should be done without delay; and all walls that are not absolutely new, or which in any way afford shelter to insects, should also



receive a thorough washing of the same mixture as the trees. In some of the washes lime is recommended; but where the walls are of brick, or even of nice clean stone, those whitened patches always look unsightly in a garden, and we do not attach so much importance to the efficacy of the action of the lime as to consider it an essential ingredient; soft soap and brine are both sufficiently injurious to insect life, and after their application they leave no unsightly effects behind them." The remarks apply to the stems and branches of old orchard trees that are often encrusted with moss and lichens; they also apply to similar portions of old trees on walls, and to the walls themselves, not to the spurs and fruiting parts of the trees, to which the brine would probably be injurious at this season, when the buds show signs of swelling. Brine is formed by placing sufficient salt in water to enable an egg to float in it, and a quarter of a pound of soft soap dissolved in a gallon of water will be the right strength for mixing with the brine for dressing the mossy trunks of old trees and the surface of the wall; but we do not advise to apply such a strong solution of salt to the younger growths or fruiting portions of the trees.

**Raising Cucumbers** (*C. C. Donaghy*).—The same frame in which you raise the plants will do for their aftergrowth, but it is more economical as regards manure to raise the plants in a smaller frame. It is not necessary to sink the beds below the level of the ground. The materials for making up the beds should be thoroughly well worked by being turned over four or five times, shaken together well and mixed, and if dry and husky be thoroughly well watered at the first two turnings as the work goes on. The lumps should be broken up, and the short mixed with the long, until the whole mass has one uniform appearance and is nearly half decayed. The size of the beds depends on the season. In February 6 feet high at back and 3 in front; in March a foot less will be sufficient. A dry bottom is desirable, and the materials well put together, shaken up, and beaten down well with the fork as the work goes on, treading all round the sides occasionally, and the bed should be always 6 or 8 inches wider than the frame all round. As soon as completed put on the frame and lights. When settled, and all has become sweet and healthy, the hillocks of earth may be put on for the young plants to be placed in; but before the hillocks are made—particularly in the early season, when the very strong beds cause some danger of burning—some preventive measures must be adopted. Almost every dundged Cucumber grower has his favourite way to prevent this occurrence. Some pave the bottom of the hillock with six or eight bricks; others with a thick twist of straw or some hayhands, over which 3 or 4 inches thick of cow dung are placed of about the substance of mortar; others, again, remove a little of the centres, and place therein a good thick turf with the grass side turned downward, and on this a good thick paste of cow dung. Whichever method is adopted the hillock must be about a bushel of rich earth prepared for the purpose, and in a cone shape, so as to bring the plants within 6 or 7 inches of the glass. As the roots grow round the hillock they should be covered with a handful or two of earth, and if all goes on well the hillocks will very soon require to be extended, and the plants stopped and pegged down. The seed should not be sown until the heat of the bed is sweet and healthy, to which state it may be hastened by its surface being stirred once or twice daily and watered, plenty of air also being given. The best material to put on the seed bed to plunge the pots or pans of seeds in is old tan or well-decayed dung or leaf soil, which may be run through a very coarse sieve. With this material the bed may be covered, or any part of it, to any thickness, to suit the purpose intended; and its being sifted makes it the more pleasant to handle, either for raising the plants nearer to the glass or lowering them. The seeds may be sown either in small pots or in pans, and the seedlings to be moved from one to three plants in a pot. If sown in the pots, so as not to need shifting, the pots may be crocked, and a little better than half filled with earth, and three seeds in each covered half an inch deep. When the plants are up they may be thinned either to one or two in each pot, and as the plants advance in height so the pots may be filled up with rich light earth, which should be kept in the frame for the purpose; also, a small pot of water should be kept in the frame for moistening the earth or sprinkling the plants when required. The plants should be kept within 3 or 4 inches of the glass. As soon as the young plants have formed two rough leaves they should be stopped. You must maintain a night temperature of 65°, with the lights propped up half an inch or so at the back, the glass being covered with mats if needed. The day temperature with sun may be 85°, ventilating with great care. Cold draughts and cold water are fatal to young Cucumber plants. Seed may be sown any time during the present month, a suitable temperature for plunging the pots in being 80° to 85°. Telegraph is a very useful variety.

**Transplanting Carnations** (*Idem*).—If you require a mass of flowers for cutting the plants may bloom in their present position. If you wish to have them distributed in your borders you can take out every alternate plant from the beds, retaining as much soil about the roots as possible, and replant carefully at any time during the present month when the weather and soil are favourable. If the plants are not removed they will not need top-dressing, but if a portion of them are taken from the bed the spaces they occupied should be covered with fresh soil and manure.

**Repotting Haresfoot Fern** (*Idem*).—Two-thirds of turfy peat, one-third of turfy loam, and a liberal admixture of broken charcoal, will form a suitable compost. Drain the pots thoroughly, and see that the soil in which the plant is now growing is not dry when removed. Towards the end of the present month, or when fresh growth is commencing, is the proper time for potting.

**Grafting Rhododendrons** (*Idem*).—The usual plan is to have the seedling stocks in pots, and graft them either at the present time in heated pits or in August in cold frames, or inarching may be done in September in the open air.

**Names of Plants** (*G. O. S.*).—*Rusens aculeatus* or the Butcher's Broom is the name of the plant of which you enclose sprays. It not only forms a good barrier against dogs and cats, but grows well under trees. Your notes are turned to much better account than the one you suggest. We are always glad to hear from you. (*Constant Reader*).—1, Totally insufficient; 2, also very small, but apparently *Veronica Andersoni*. (*C. T.*).—*Fraxinosa eximia*. (*S. B.*).—1, a good form of *Cypripedium insignis*; 2, *Tillandsia zebrina*; 3, *Blechnum boreale*. (*H. Shaw*).—*Acaelia dealbata*.

**Bees Covered by Snow** (*J. S. Cairnie*).—You ask whether it would be wise to remove the snow from your hives which have been now buried beneath 4 or 5 feet of it for approaching two months. The snow thus covering your hives is a great advantage to your bees—*i.e.* if the snow is light and fleecy it secures for them a perfectly still air, and thus saves them altogether from one main loss of heat—*viz.*, that occasioned by chilling draughts entering the hive mouth with every puff of wind. The snow will have been melted away from immediate contact with the hive entrance, and through it (the snow) quite sufficient air will percolate into the space thus occasioned to supply all the wants of the bees. In Russia it is quite common for hives to stand much more deeply buried than yours, and the bees thus situated are protected admirably

from the intense rigours of the winter. Do not disturb the snow, then, until a thaw begins to solidify it, as then the water running through it would work damage and it would become impervious to air; but in removing it cause as little jar as possible, and shade the hive mouth carefully for a time lest the inflow of light should tempt the prisoners out to their destruction.

#### COVENT GARDEN MARKET.—MARCH 2.

OWING to the frost trade keeps very quiet. The bulk of hothouse Grapes is now arriving very much shrivelled, but fine samples are realising high prices.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	McLons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Neectarines..	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges .....	½ 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	4 0 8 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples ..	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	0 0 0 0	Plums .....	½ sieve	0 0 0 0
Grapes .....	½ lb.	3 0 12 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	1 3 2 6	Scorzonera .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	3 0 3 8
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE MANURING AND IMPROVEMENT OF PASTURE AND PARKLANDS.

GRASS LAND management is a subject of far more importance than it has ever been before, for in consequence of the general depression existing in connection with agricultural pursuits large tracts of land have been thrown upon the proprietors' hands—much of it in an impoverished state and foul condition. Upon various estates it will require all the practical knowledge and judicious treatment which the agent or home farmer can command to meet such an emergency as now prevails; in fact, some fields are actually run to waste in those instances where the owners cannot find capital sufficient to cultivate and lay down the land to permanent pasture. The last is certainly the extreme difficulty, but in case we look at it fairly under the heading of our subject there is no reason why land run to waste cannot be brought into profit without the expense of tillage and cultivation, supposing the water passes from it freely and the fields are level enough to bear mowing and the ordinary treatment of pasture land. Although we have named an extreme case we have known large areas of land thus situated, which have been manured and renovated without tillage, and the letting value so much improved that it has been comparatively easy to find a tenant.

If the home farmer will refer to the articles in this Journal dated the 24th and 31st of January, 1878, pages 75 and 95, under the heading of "Management of Pasture and Parkland," and also to the articles under the heading of "Laying Down Land to Permanent Pasture," February 5th, 12th, and 19th, 1880, pages 105, 126, and 145, much information on the general subject will be found. We have named these references because we do not intend on this occasion to examine the whole subject again, but



merely to introduce various practical and theoretical statements which may be considered supplementary to former contributions. We are led into this in consequence of the increasing interest in the subject taken by landed proprietors. Nothing has ever been written of more importance in farming than the papers lately given by Mr. Lawes in the *Agricultural Gazette*, which make us acquainted with various theoretical and practical points. It is, however, a very wide subject, and on which much diversity of opinion necessarily prevails.

In reference to the manuring of old permanent pastures, and those recently laid down or intended to be laid into permanent grass land, we should first understand the difference in the fertility of old pastures and that recently formed out of arable land. The remarks of Mr. Lawes are not only interesting but very instructive, and upon which we are induced to place the greatest reliance by reason of his experience and long-continued experiments carried out at Rothamstead with intelligence and perseverance without regard to the outlay of capital. Taking all the matters into consideration Mr. Lawes stands alone in his position in this country in his ability to carry out anything by way of experiment which may be necessary for furnishing evidence for the farmer's guidance, and upon which he may rely with unlimited confidence. Mr. Lawes states, "Practical knowledge has decided that when a field of permanent pasture and one of arable land lie adjoining, the former contains a larger store of fertility than the latter. Practice has equally decided the point that, by the conversion of pasture into arable land, these stores of fertility can be made available for the production of corn, roots, &c.; and further, on the other hand, that the converse process of forming a permanent pasture from an arable soil is a work of time: but the duration of the period before that newly laid down will equal the old pasture in character must depend altogether upon the nature of the soil and climate of the locality, and the treatment which the land has received. To these facts I propose to add some further information which may be of service at the present time, when the conversion of arable land into pasture is exciting so much interest. At Rothamstead—in addition to the permanent pasture in the park, which has probably existed as such for centuries, though its exact age is unknown—I have from time to time laid down land to grass at intervals commencing from forty years ago up to 1879. I am therefore in a position to furnish considerable evidence on the subject, so far as my own land is concerned. The old pasture under experiment in the park, after the removal of twenty crops of unmanured hay, would probably contain more nitrogen in the first 9 inches from the surface than any of the land laid down by me, and nearly twice as much as would be found in the arable land. I may, however, possibly be able to convey the impression which I wish to make by an illustration. How great is the accumulation of manure ingredients in the soil in some cases we may gather from an experiment at Rothamstead, where, upon a plot of old garden soil, the removal of two or three crops of red Clover annually for a quarter of a century, without any fresh application of manure, has not yet exhausted the stock already existing in the soil. Again, upon part of the permanent Wheat field 14 tons of dung per acre have been applied annually since 1844. This would amount in round numbers to 500 tons, containing about 7000 lbs. of nitrogen, equal to about 8500 lbs. of ammonia. Of this the crop may have removed one-fourth, a portion has been lost, and another portion has become part of the capital stock of fertility in the soil. So large is this capital and so tenaciously is it held that probably a century of unmanured cropping would not entirely exhaust it, and yet it is probable that the nitrogen accumulated in the first 9 inches of the soil is less than that contained in the first 9 inches of the unmanured pasture. Your correspondent, in his very interesting history of the Rothamstead grass experiments, refers to the fact that I have to produce 8 or 10 tons of grass roots in every acre of new pasture. In addition to this I may here add that I shall further have to accumulate in the soil about a ton of nitrogen before my new pasture will be equal to the old."

We desire to call the attention of the home farmer to the way in which the facts above stated show the necessity of treating differently the old and new pastures. In the old pastures, if fed off by cattle eating decorticated cotton cake, little else would be required; whereas the new pasture should not only have the cotton cake consumed upon it annually, but liberal dressings of yard dung and ammoniacal manures like guano and nitrate of soda, as well as manures containing the phosphates, should be applied yearly. This should be done without reference to the requirements of the grasses for the time present, but enough to be continually acting upon the roots of the grasses until they attain to almost a solid body like roots of good old pasture; or, in other words, making such an investment on the land that the capital or

stock of manure should be equal to the formation of a full plant of stock grass roots, in order to its permanent establishment. In previous articles relating to laying down and maintaining permanent pasture we have not stated the time which it would take to bring new pasture into a state when it shall be equal to the old, nor can it be stated as a question of time. What we have most strenuously contended for is a most liberal and abundant supply of manures, not only at the time of seeding but annually afterwards, so that the seeds when properly sown may afford a luxuriant growth sufficient to make the pasturage worth the expenses of manures until it can be ranked with the old pastures in turf and production. This will depend upon a variety of circumstances other than manuring, such as the soil, climate, judicious feeding, mowing, and general management, also the growth and decay of the roots of the grasses. Our next notice of Mr. Lawes' paper will comprise a quotation wherein he practically describes the herbage produced upon the best grazing lands of Leicestershire and their value, from which we shall endeavour to draw certain important conclusions which may well direct us in the choice of seeds of grass, Clovers, &c., for laying down or renovating our new grass lands; in fact, we have various comments to make upon the subject of great importance considering the present condition of agriculture.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—Tillage has been well nigh impossible during the greater portion of the month of February, and therefore compared with ordinary or average seasons this and seed time is very late even on the driest soils. The seeding of Barley as a second corn crop may be attended to, but should depend almost entirely upon the land being clean and free from couch grass. It is, however, not advisable to sow Barley after Wheat when the latter has been sown by once ploughing out of lea, unless an autumn fallow has been made, for on the loamy or mixed soils the land would be too heavy and close for the growth of Barley with success. In a season like the present spring culture could be done until the seed time, which cannot be delayed by cultivation without the risk of a late crop or the land becoming too dry for the seed to vegetate with regularity. We therefore advise that land be selected for early seeding with Barley after Wheat or other crops which had been prepared for by a fallow. Upon very light and dry soil Barley may be sown as soon as the land becomes dry on the surface—land where roots have been fed off by sheep. Upon loamy and mixed soils we would sooner sow drege, as it is much surer to yield a profitable return. There is one preparation for Barley which is really a very good one upon ordinary soils, especially after such a frosty winter as we have experienced—namely, the land which had borne a crop of Mangolds last year; it is, however, a common practice to sow Wheat after Mangolds as soon as the land is cleared of the crop. We prefer to plough in the Mangold leaves, and lay up the land as fallow for the winter months, after which no land upon the farm will be more likely to yield a full crop and malting sample of Barley if sown at the first fine weather which happens in the spring. Such land, too, will require but little labour; one scarifying will be sufficient before seeding, and prove a much better preparation than ploughing. Another advantage we have found that red Clover is likely to plant well after the Mangold crop, whether seeded in Barley or Wheat, especially if the land is not ploughed in spring, and the fine weather-beaten surface maintained and retained by the use of the scarifier or horse-hoe only, which makes the best seed bed the Clover can have.

*Hand Labour.*—The work in the woodlands and hedgerows should now be nearly concluded in order that the men may be employed in work connected with the tillage, manuring, and seeding of the land. The plashing of hedges, banking, and ditching should now be completed. The outlets of all draining work, whether in the pastures or arable land, should be attended to whilst the ditches are being scoured. Finding these outlets is often a matter of much uncertainty, especially upon those estates where the home farmer has no map of the draining or plans of reference to assist him, and it is at once shown the disadvantage of this when strangers and new labourers are employed in such work. In some meadows where draining has been done in peaty soil there will occasionally be collections in the tiles of a red ferruginous matter, which if allowed to collect undisturbed will become a hardened mass and entirely stop the drains. Upon such soils where we use iron rods with a swab at the end, so that when introduced into the tiles twice a year, in March and October, they may be scoured and kept open, and as we have the iron rods made in certain lengths which can be screwed together we are enabled to scour and free the tiles for a considerable distance within the outlets. We recommend this system, otherwise these drains will require constant repairs by taking up portions and relaying, which proves very expensive, especially if no map of the draining is available. The crops of Swedish Turnips are nearly all so much injured by the frost that they will be of no use after another ten days or a fortnight, excepting the late-sown pieces, which are mostly sound and uninjured, being in full growth and vigour when the frost commenced. If allowed to remain undisturbed in the land and ploughed in, although they may be quite decayed, they will manure

it sufficiently to insure an average crop of Barley or Oats; the former, however, would answer best, the land not having been trodden by sheep will be light and favourable for that grain. The loss of the Swede crop should induce the farmer to anticipate and provide for any deficiency which may occur; in fact, on many farms if the months of April and May should prove dry and cold the situation in some cases may prove a disaster in respect of the purchased food required to carry a breeding flock on to maturity. As the time for planting Potatoes is arrived the selection of the early sorts is of far less consequence than the later varieties, because the former are usually lifted and sold before the disease appears. The late sorts which have been proved as most likely to resist the disease are the Champion and Magnum Bonum, but we advise that any new variety which is highly recommended should be planted for experiment, and if found sound when taken up a considerable store for next year's planting will be advisable; and this is of consequence, because all new sorts which can be depended upon are costly to purchase in a large bulk. We still recommend that when the land intended for Potatoes was not manured in the autumn or winter that artificial manures only should be used, the guano which contains the most ammonia being the best hand manure which can be used, especially if mixed with damp ashes to prevent the manure being too much scattered by the wind. In this way we have found 4 cwt. of guano per acre cast into the furrow with the sets, equal and in some respects preferable to the largest quantity of either yard, box, or town manure which can be applied; at the same time there is the advantage of being able to plant the tubers as soon as the weather is favourable, and thus avoiding the delay of the season, and the treading and tracking of the land by the laying-out and spreading of dung.

#### VARIETIES.

**THE COMMITTEE OF THE POULTRY CLUB.**—In consequence of Mr. Butler Smith having declined to serve upon the Committee of the Poultry Club there is a vacancy in that body. I shall feel obliged by nominations (which must be made by at least two members of the Club, with the consent of the person nominated) being sent to me before the 10th March.—ALEX. COMYNS, *Hon. Sec. Poultry Club, 47, Chancery Lane, London, W.C.*

**— WORK FOR WOMEN.**—It may be some consolation to Madame Lina (Geneva), to learn that in the town of Prescott, the seat of watch movement-making, that several of the large manufacturers have introduced female labour, which answers very satisfactorily. It is only, however, where machinery has been introduced that it is found desirable to employ females.

**— BATH AND WEST OF ENGLAND SOCIETY, AND SOUTHERN COUNTIES ASSOCIATION.**—At the Council meeting held at the Grand Hotel, Bristol, on Wednesday, February 23rd, Mr. Charles Edwards, as Chairman of the Finance Committee, brought up the annual statement of accounts. Having pointed out the fact that the deficiency on the year's proceedings amounted to £1154, and had been met by the sale of £1000 India bonds and from the balance in hand, he went carefully through the receipts and expenditure of the various departments, and showed the profit and loss on each. The account was approved and ordered to be printed in the forthcoming volume of the Journal. Mr. Jonathan Gray, as Chairman of the Plant Committee, presented the annual statement, which showed a profit on the Society's plant for the year of £241 6s. 8½d. Colonel Luttrell, on behalf of the deputation appointed to visit Cardiff to inspect the proposed sites for the Society's exhibition in that town in 1882, reported that the site offered for the show yard was the Cathays Park, which had been generously granted for the purpose by the Marquis of Bute, and they had no hesitation in expressing an opinion that the meeting next year at Cardiff would be exceptionally successful. Letters were read by the Secretary from the British Bee-keepers' Association and the West Kent Bee-keepers' Association, requesting facilities for an exhibition of bee manipulation and appliances at the Tunbridge Wells Show, and it was resolved that, subject to the approval of the Allotment Committee, space be granted in the yard for the erection of a tent for the purpose, on the condition that there be no extra charge for admission thereto. It was further resolved that the arrangements be carried out under the direction of the Hon. and Rev. J. T. Boscawen, Steward of Horticulture.

**— A SIMPLE TEST OF WATER IN MILK.**—A German chemist furnishes a simple procedure for testing the amount of water in milk, which can be applied by anyone. All that is required is a small quantity of plaster of Paris, say an ounce. This is mixed with the milk to a stiff paste, and then allowed to stand. With milk of 1030

specific gravity, and a temperature of 60° Fahrenheit, it will harden in ten hours; if 25 per cent. of water is present, in two hours; if 50 per cent., in one and a half hour; and with 75 per cent., in thirty minutes. Skimmed milk which has been standing for twenty-four hours, and is of 1033 specific gravity, sets in four hours; with 50 per cent. of water, in one hour; and with 75 per cent., in thirty minutes. Heat should not be applied, for then the use of the thermometer would be required.

**— PROPOSED "ROYAL" SHOW AT READING.**—The Committee of Inspection appointed by the Society of the Royal Agricultural Society visited Reading last week for the purpose of viewing the site offered to the Society for its proposed exhibition at Reading next year. The Committee, consisting of Mr. Wells (President of the Society), Sir Brandreth Gibbs, Mr. Charles Rendell, Mr. J. Shuttleworth, Mr. Jacob Wilson, and Mr. H. M. Jenkins (Secretary), went over the farm of Mr. Colebrook (Mayor), and the adjoining land belonging to Mr. Palmer, M.P., and expressed themselves very pleased with the site. Having lunched at Sutherlands, by invitation of Mr. Martin J. Sutton, the visitors inspected Messrs. Sutton and Sons' business premises, and afterwards returned to town.

**— ENGLISH CART-HORSE SOCIETY.**—The report of the Council states that the Society at the present time numbers 522 members. The receipts for the present year (including the balance at the bankers on December 31st, 1880) are estimated at £990 12s. 3d. The expenditure for the present year is estimated at £746 10s. 9d., which includes the cost of the second volume of the "Stud Book," now ready for distribution among the members. It numbers 168 stallions and about 500 mares. A considerable loss was sustained by the Agricultural Hall Company on the first show held last year; so much so that this second show would not have been held but for a subscription liberally responded to by ninety members of the Society, amounting to £342, and which was handed by the Horse Show Committee to the Agricultural Hall Company towards the prizes now offered, amounting to about £500, and to aid in carrying out the details of the present show without financial risk to the Society. The important display of horses and the large number of entries at this second show tend to prove that it is the firm desire of the members and others that these shows should continue to be held.

**— AGRICULTURAL PROSPECTS.**—Another week of dull cold weather, with snow and rain, has not improved the condition of the land, and unless we get drying winds the stronger soils will work badly. As it is, work at the commencement of March is not by any means in a forward state, and the spring must of necessity be an unusually anxious time. Reports this week are unanimous in ascribing but little damage to the young Wheats from the severe frosts; at the same time the damage to roots in the fields—and even in stacks where not properly protected—is now known to have been very great. Liver fluke is very prevalent, and where foot-and-mouth disease has occurred amongst lambing down ewes the loss of lambs is likely to prove serious. So far as the lambing season has hitherto gone reports vary, but at the best they are not very cheerful. Dry weather and bright sunshine are now what is needed for the land and for the stock upon it.—(*Mark Lane Express*).

**— EFFECTS OF FROST ON CABBAGES.**—This has been most disastrous this year. The fact is, hardly any of the Cabbage tribe will bear the touch of zero; and that, or even a lower temperature, was reached in many localities. It may be noted, however, that late Cabbages will bear far more frost than those that are earlier. The whitest, hardest Cabbages are always the most injured; it might, therefore, be desirable to sow and plant later; or two or three sowings might be made, and several successive plantings. It would generally be found the latest, though not the largest, would winter best. For general purposes there seems to be no hardier Cabbage than the Drumhead; but others are grown at times, and it would be found that leaf Cabbages winter best. Late Savoy also winter better than Cabbages. The Pomeranian Cabbage used to be grown extensively in Scotland as one of the hardiest; it is a sort of pyramidal Sugarloaf Cabbage, as different as well could be from the Drumhead; it might be planted more than as close again. Again, Scotch Kale of any sorts are much hardier than Cabbages; they are



less solid, but might prove useful food for early ewes and lambs, as well as milch cows.—*AGRICOLA* (in *Agricultural Gazette*).

## POULTRY AND PIGEONS

### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 143.)

#### FORMING A STRAIN.

WHETHER the beginner adopts the first or the second course which we have indicated, the method of breeding which he must pursue will be very similar. The distinction, as we have already pointed out, will lie chiefly in the fact that in the first case starting with birds which have been already inbred to a considerable extent, he is less likely to be able to carry out the system so far without the strain deteriorating in certain points. This will render it necessary that great care be taken not to carry the process of inbreeding too far; but as birds purchased in this way may be either very closely or only very distantly related to each other, it is impossible to indicate how far inbreeding may be carried in each particular case, and this must be left to the discretion of the breeder himself.

Artificial selection is to some extent a separate process and must be dealt with separately, but the course to be pursued in regard to the first two cases being so nearly identical they may be discussed together.

Let us suppose, then, that the breeder has purchased a cockerel A and a pullet B quite unrelated to each other and as free from faults as possible. He must mate these together, and set every egg laid during the hatching season. When the progeny have come to maturity it will probably be found that none of them are really good. The breeder must not, however, be discouraged by this, as it is merely the natural result of breeding from perfectly unrelated parents. The best cockerel of the progeny must be chosen for mating with the pullet B, now a hen one year old. From the progeny of this pair the best cockerel must again be chosen and mated with B, now two years old.

In regard to some breeds of poultry this is as far as the length of life of the birds will permit the process to be carried; but in regard to other breeds and to Pigeons it may sometimes be carried a year or two further. We will suppose, however, that three laying seasons is as much as can be depended upon. The progeny of the first year's breeding being one-half of the blood of A and one-half of the blood of B, and a cockerel of this year having been mated with B, it follows that the progeny of the second year would be quarter A and three-quarters B; and upon the process being repeated the third year the progeny will be one-eighth A and seven-eighths B. A precisely similar process having been gone through on the other side by mating the three or four best pullets of the first year's progeny, which were one-half A and one-half B, with the cock A, and so on for the three years, it will be manifest that at the end of the three years the breeder will have the two original birds A and B, which will as a general rule be now unfit for further use, and a number of birds some of which are seven-eighths A and one-eighth B, and the rest of which are seven-eighths B and one-eighth A. He ought also to have reserved some birds of the previous year which are three-fourths A and one-fourth B, and three-fourths B and one-fourth A respectively.

He can now adopt the method, which is found to be on the whole most advantageous, of mating cockerels and pullets with birds over one year old, and ought to be in a position to start four yards of good birds which are only distantly related to each other—that is to say, he can mate a cock which is three-fourths A and one-fourth B with pullets one-eighth A and seven-eighths B; he can mate a cockerel which is seven-eighths A and one-eighth B with hens one-fourth A and three-fourths B; and he can also mate a cock three-fourths B and one-fourth A with pullets one-eighth B and seven-eighths A, and a cockerel seven-eighths B and one-eighth A with hens one-fourth B and three-fourths A.

When he has got thus far he may be fairly said to have formed a strain of his own, and his subsequent course of action must follow as much as possible in the lines already indicated—that is to say, he must for as long a time as possible keep the blood of each yard distinct from that of the others, merely using the others for the purpose of comparatively fresh blood when necessary, or for correcting any point in which one yard may be deficient.

Of course these directions must only be understood as general principles to be followed so far as circumstances admit; not as rules to be fixedly adhered to in all circumstances. It may be that even though the two birds originally chosen were themselves

free from glaring faults of any sort, yet they may have inherited tendencies to such faults, which by the course of breeding adopted have been developed in the progeny. If this be so the method suggested must not be followed so far as we have indicated, but at an earlier period a bird may be selected from the other yard with a view to the correction of the fault in question.

In starting a strain we are entirely averse to the system we have seen suggested by some writers, of mating birds with faults which mutually counteract each other. For instance, in the case of Brahmas, heavy feather and vulture hook on one side, against poorly feathered shanks on the other side; but when a bird is introduced into a strain merely for the purpose of counteracting a fault in the strain, and there is no intention of inbreeding from the bird thus introduced, the same objections do not apply. In that case, a bird having developed in an exaggerated degree the point in which the strain is deficient, may with advantage be used; but we shall have more to say upon this point when we come to speak of introducing fresh blood.

We now turn to the course of procedure to be adopted where the method of artificial selection is chosen by the beginner.

Here, just as in the other two cases, it is necessary that the breeder should have clearly settled in his own mind the points which he is aiming at; and he must in the first instance choose birds which to a certain extent, however small that extent may be, have developed these points. If not, the process of artificial selection will become a most difficult, and, indeed, perhaps an impracticable one.

Here it is as well to begin with as large a number of birds as possible, so that the process of selection may have as wide a scope as possible, and that when the strain has been formed the birds may not be so closely related to each other that it will be necessary at once to introduce fresh blood. A well-known breeder of our acquaintance, who was recently starting a yard upon this principle, said to us that he always liked to have as great a variety as possible to begin with; and in this respect we quite agree with him. As many chickens as possible must be hatched and reared so far as necessary to make sure of their quality every season. From these must be selected those which most closely approximate to the standard of perfection of the breed. These again must be mated together, and the same process repeated with their progeny, only those birds being kept and bred from which have developed to some extent the points sought after.

If the number bred be large enough it will be found that after two or three years of this process the number of the progeny which are valuable will be largely increased, and when a reasonable proportion of good birds are produced the breeder may with advantage adopt the course we have advised above, and keep two, three, or four yards each as distinct as he can in blood from each other, but so far related to each other that mutual crosses may be resorted to without fear of the progeny throwing back to inferior ancestors.

#### FOOD FOR EARLY CHICKENS.

GOOD food is at all times very necessary to the well-being of young fowls. Especially is this the case in cold weather and early in the season, such as in February and March, when they have few chances of picking up anything for themselves, and ordinary summer food is not sufficient to keep out the cold, or the body in a healthy growing state. Hot food is very desirable at this time, and is probably better produced with spice than hot water. Apart from warmth, however, the food must also be strong, and in this respect few kinds are better than hard-boiled eggs chopped up and mixed with the meal. The only objection which can be offered to the use of eggs at this time is their scarcity and expense, but a remedy for this may be pointed out. As a rule not above half the number of eggs placed under a hen to hatch are fertile thus early in the season. It is a loss in every way to allow the unfertile eggs to remain under the hen until those that are good have hatched out. Cheap egg-testers can now be had with which anyone can prove whether an egg is fertile or not after it has been under the hen for a few days, and all eggs should be thus tested, only the good ones left to hatch, and the others taken away. After being under the hen for a few days or a week the latter may not be relished at table, but they are very acceptable as food for the young chickens, and do for them as well as the best fresh eggs. Those who may now be setting many dozens of eggs weekly will find it true economy to test and use their unfertile eggs in the manner we have indicated. They should be boiled hard and afterwards chopped fine, shell and all. With many some dozens of unfertile eggs may be found weekly, and there is certainly no better use to which they can be put than giving them as food to the young chicks.—J. MUIR.

[A moderate quantity of chopped egg is very good for the



chicks, but care must be taken not to give too much, as it has a tendency to produce constipation.—ED.]

### THE POULTRY CLUB.

THE first meeting of the Committee of the Poultry Club since the increase of its numbers was held on Thursday, the 24th of February, at the Charing Cross Hotel. There were present the Hon. and Rev. F. G. Dutton, the Rev. H. C. Fellowes, and Messrs. H. R. Dugmore, L. C. C. R. Norris, T. P. Lyon, R. A. Boissier, S. Lucas, J. C. Fraser, and A. Comyns.

The voting papers relating to the recent election were examined, and it appeared that the following were the votes recorded for each candidate:—*President*, Hon. and Rev. F. G. Dutton, 45. *Treasurer*, H. R. Dugmore, 36. *Hon. Secretary*, A. Comyns, 42. *Committee*, T. W. Anns, 35; O. E. Cresswell, 25; Rev. H. C. Fellowes, 41; J. C. Fraser, 36; T. P. Lyon, 37; R. E. Horsfall, 38; L. C. C. R. Norris, 41; Rev. J. D. Peake, 38; E. Pritchard, 41; Rev. W. Serjeantson, 38; Butler Smith, 40; R. B. Wood, 12. Many voting papers had been returned signed in blank, with a request that Mr. Cresswell would fill in the names as he chose. This he naturally had declined to do. As Mr. Butler Smith had been nominated without his own consent his election was declared void, and the Secretary was instructed to issue a notice requesting nominations to the vacant place on the Committee.

The following new members were elected:—C. R. Williams, Waterloo Park, Waterloo, Liverpool; A. Gervaise Bright, English Street, Armagh; Anthony Taylor, Netherbury, near Bedminster, Dorset. — Lloyd, of Douglas, Isle of Man, was elected an associate member.

Directions were given to the Treasurers to pay the subscriptions promised by the Club to the Wolverhampton and Liverpool Shows.

Some complaints by members as to the non-payment of prize money, &c., at various shows were then dealt with, and acknowledgments by members of some similar matters having been settled upon the intervention of the Secretary were read.

A letter from Mr. O. E. Cresswell, stating that the accounts for 1880 had not yet been finally settled, but that he believed there would be a balance, as on the 31st of December last, of £153 8s. 10d. was next read.

The times and places for the meetings of the Committee were next discussed, and it was decided that as far as practicable such of the meetings of the Committee as are to be held in London shall be held at 2 P.M. on each of the following days:—March 28th, April 27th, May 30th, June 27th, July 27th, August 29th, and September 26th. That the meeting in October be held on the Monday in the Dairy Show week. That in November two meetings be held—one at the Crystal Palace, on the Monday in the Show week; and another at Birmingham, also on the Monday in the Show week; and that a meeting be held at Wolverhampton on some convenient day during the Show.

The Secretary was empowered to convene extraordinary meetings in case of urgent business.

The circular to fanciers whose names appear in the "Fanciers' Directory" for 1880, directed by the general meeting to be sent out, was then considered, and a draft thereof approved by the Committee. Directions were given to the Secretary to issue the circulars as soon as possible.

The form of the circular to the Secretaries of shows, requesting information as to the dates on which it was intended to hold the several shows in the ensuing season, was then approved, and directions given for its issue.

The circular to railway companies, as to the rough handling of birds and other similar matters, was discussed; but it was decided that this should stand over until the next meeting, that further information as to certain points might be obtained.

The Secretary was requested, if he should in his discretion see fit to do so, to take steps for bringing the question of the carriage of poultry under the notice of the Parliamentary Committee about to be appointed to inquire into the carriage of stock and agricultural produce.

The Secretary was directed to take steps for obtaining payment of such of the subscriptions for 1880 as had not yet been paid, with a view to the closing of the accounts for that year.

The question of the preparation of a standard of excellence was then shortly discussed, but was postponed until the next meeting of the Committee.

The Secretary was directed to communicate to Mr. O. E. Cresswell the following resolution of the Committee:—The Committee desire to express through their Secretary their grateful sense of the invaluable services rendered by Mr. Cresswell to the Club, both in its formation and during its subsequent career to the present time.—ALEX. COMYNS, *Hon. Sec. Poultry Club, 47, Chancery Lane, London, W.C.*

### SULPHUR VERSUS FEATHER-EATING.

IN reply to your correspondent John Melville, who wishes to know the quantity of flowers of sulphur to use for the purpose of curing the feather-eating propensities in fowls, I have much pleasure in stating that I have been in the habit of giving three tablespoonfuls to twenty-four fowls daily, mixed up with their

morning soft food. He might try two tablespoonfuls at first for his thirteen birds, given once a day. If he finds it scours them reduce the quantity, or give it every second day. If the disease is bad amongst them or of long standing it may take a considerable time before it is subdued. The sulphur appears to supply something which they require and cannot obtain when in confinement. Overfeeding will also, I think, produce it, as that brings on a vicious appetite and diseased habit of body. Doubtless plenty of green food combined with grubs and insects, which fowls obtain when on a grass run, is the best natural preventive; but where we are compelled to keep fowls in a small space, and are not very careful as regards their diet, they will make fat internally, and that tends to induce the cannibal propensities. The sulphur, perhaps, purifies and cools their blood, and so brings them into a better state of health.—F. C. TAYLOR.

### OUR LETTER BOX.

**Fowl Ailing** (*C. M. C., Stroud*).—We fear from the account you give of her symptoms, that your hen is suffering from liver disease. Your treatment has been correct enough so far. Try the effect of a grain of calomel every other day. The lameness is, however, a bad sign, and we fear the hen will not recover.

**Frostbite** (*Idem*).—You can do nothing now for the frostbitten comb. Should such a thing occur again rub the comb well with snow or cold water, and keep the bird in a moderately cold place until the healthy colour returns.

**Chickens with Gapes** (*R. H. A.*).—The only method of curing gapes which we have found thoroughly effectual is the removal of the small worms, the presence of which in the windpipe of the chick constitutes the disease. This can be done by means of a small quill feather from which the greater part of the feather has been removed, only about half an inch at the end being left on. This must be inserted in the windpipe of the chick, the opening of which will be seen just behind the tongue, gently pushed down as far as it will easily go, twisted round, and drawn out again. It will generally be found that there are a number of small worms adhering to the feather. Care must be taken that the chick is not choked during the operation. A difficulty is sometimes experienced by beginners in getting the feather down the windpipe, but by holding the chick's beak open with the finger and thumb of the left hand applied from behind, and pressing the throat of the chick slightly with one of the other fingers of the same hand, the opening of the windpipe can be clearly seen. If the feather be moistened with spirits of turpentine before use it will be an advantage. The turpentine kills the worms, but the feather must only be moistened, not soaked, with it, as a drop going into the lungs would be fatal to the chick. Another mode of cure recommended is holding the chick until nearly, but not quite, suffocated in the fumes of sulphur or carbolic acid. We have not found this cure at all reliable. Scrupulous cleanliness with a liberal use of disinfectants (such as carbolic powder), and the separation of the infected chicks from the others, are the only means of prevention. The ground is said to become tainted with the germs of this disease, so it is as well where possible to avoid putting other chicks where those with gapes have been.

**Bones for Poultry** (*J. S., Cairnie*).—Except for the purpose of allowing them to pick off any scraps of meat, &c., which may be on them, bones can only with advantage be given to poultry after having been crushed in a bone mill, or broken quite small by hand. Bonemeal is largely used to aid the growth of exhibition poultry, and can be purchased from the various dealers in it. It is distinct from bone dust, which is made from the refuse of workers in bone and is useless for poultry.

**Mustard and Cress on Farms** (*Victor*).—The quantity of seed required per acre is for the former about 16 lbs., and the latter about 12 lbs.; both should be drilled at about 14 inches apart in order that the land may be hoed if requisite. The produce of these in seed is so various and so much depending upon soil, situation, &c., and the crop being so uncertain and speculative, as well as in some cases seriously injured by small birds before it can be harvested, that we may only mislead some people if we were to name the quantity of seed which is sometimes obtained.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. Feb.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	20	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
		30.172	37.3	37.0	N.E.	39.1	38.8	36.2	42.0	36.5		
Mon.	21	30.247	34.0	33.8	N.E.	38.3	35.4	32.3	44.7	0.755		
Tues.	22	30.166	31.7	31.7	N.	37.2	35.4	28.8	41.3	—		
Wed.	23	30.188	32.9	32.4	N.E.	36.6	37.3	31.5	48.4	0.010		
Thurs.	24	30.282	35.6	34.2	N.	36.3	40.7	32.2	64.0	0.543		
Friday	25	30.178	35.0	33.7	N.E.	36.3	39.3	33.4	48.7	—		
Satur.	26	29.859	32.7	30.9	W.	36.3	43.0	28.6	78.1	—		
Means.		30.156	34.2	33.4		37.2	38.6	31.9	52.5	1.308		

### REMARKS.

20th.—Rain in morning, dull throughout; sharp showers of small hail from 6.20 P.M., turning to snow at midnight.

21st.—Ground covered with snow 2 inches deep; fair, dull, and cold.

22nd.—Foggy dark morning; cold damp day.

[2.30 P.M.]

23rd.—Fair first part of morning; slight snow at noon, falling thickly from 24th.—Fair throughout; clear sky and bright sunshine for short time in middle of day.

25th.—Fair, but overcast, damp, and cold; bright starlight evening.

26th.—Fine with bright sunshine in middle of day, but overcast at night.

Temperature equable and low, with a heavy fall of snow on 21st, and another of rapidly melting snow on 23rd.—G. J. SYMONS.



10th	TH	Royal Society at 4.30 P.M.
11th	F	Quekett Club at 8 P.M.
12th	S	Royal Botanic Society at 3.45 P.M.
13th	SUN	2ND SUNDAY IN LENT.
14th	M	Royal Geographical Society at 8.30 P.M.
15th	TU	
16th	W	Society of Arts at 8 P.M.

### DAHLIAS AND THEIR CULTIVATION.

THESE popular flowers are no longer restricted to the Show and Fancy varieties, but there are now so many different forms that growers may make selections for their several different purposes. The large Show varieties still hold their own for exhibition as heretofore, and when well grown are amongst the noblest of autumn flowers, lasting well in a cut state, but far too formal to be used as decorative flowers. To supply this want there is now a very large number of Bouquet or Pompon Dahlias, the various single varieties, and the latest introduction, the Cactus Dahlia (*D. Juarezii*), all of which during the autumn months have few equals. Cut as sprays with buds and leaves, and associated with other flowers, they are admirably suited for large vases. Gardeners as a rule have two important seasons with most plants—the seed time and harvest, or in other words, while plants are flowering is the time to make notes on their good or bad qualities, and mark selections for raising or increasing the plants when the proper time arrives. Dahlias, since the foliage was blackened in November by frost and the roots stored in their winter quarters, have been almost dormant, and now the period of the year has arrived to work upon the observations made when the plants were in bloom, and with this object these notes are contributed.

**PROPAGATION.**—The most common methods for increasing a stock is by dividing the roots and by cuttings; by this means the same varieties are perpetuated. New varieties and many of the single kinds are raised from seed, and in some few cases grafting is practised.

**Division of the Roots.**—This consists of dividing the root from the crowns or stems downwards, taking care to have one or more eyes to each division. Pot each piece or division in light sandy soil, and place them in a shady temperature, where they will break and make strong plants by planting-out time. This is a very old and simple plan, and if only a small quantity of each variety is needed is very safe.

**Cuttings.**—For all ordinary purposes the first or second week in March is the most suitable time to place the tubers in a warm situation to start. If the collection be small they may be placed closely together in boxes, seed pans, or large pots, covering the roots with light leafy soil or cocoa-nut fibre refuse, placing them in a temperature of 65°; but for larger collections a gentle hotbed or the side stages of a stove or vinery may be employed. The young shoots usually appear soon; three, four, or more rising up from near the stem of the old plant. These when about 2 inches in length may be taken

off with a sharp knife close to the old tuber, inserting each cutting singly in small pots filled with leaf soil and silver sand. Plunge these pots in a strong bottom heat in the propagating house or hotbed, keeping the soil moist until the cuttings are rooted, which will usually take from two to three weeks. When rooted gradually harden them, and give them a shift into larger pots and richer soil. When well established in the latter pots remove them to a cold frame until the weather is favourable for planting them out in their summer quarters. Cuttings treated in this way are usually sturdy by planting time, and afterwards the plants grow rapidly and flower very freely during the early autumn.

**Seeds.**—Since the single varieties are growing more in favour with the public this method of raising a collection has much to recommend it. Sow very thinly in shallow seed pans, placing them in a hotbed with a temperature from 60° to 70°. In that the seed will soon germinate, and the plants will require timely potting-off and hardening similar to that recommended above for cuttings. We know an amateur who has for many years thus treated the Dahlia as an annual, and he has been very successful. Some of his varieties have, indeed, been almost suitable for exhibition. When the plants are grown solely for home decoration and no convenience exists for storing the roots, the plan alluded to is worthy of a trial.

**OUTDOOR CULTIVATION.**—All Dahlias are very strong-rooting, and to obtain plenty of flowers the plants must be well supplied with stimulants. A very good practice is to mark out the places allotted to them. Four feet apart is a fair distance, placing a strong stick at each spot, and removing the ordinary soil in front of it, replacing with a richer compost of loam and manure. Tie them loosely to the stakes at once, or the wind will snap the young heavy growths. The end of May or early in June is about the most favourable time for planting, but when planted in masses much taste accompanied with a knowledge of the varieties with regard to colour and height are needed to keep the tallest either at the back or centre of the mass or bed. In some catalogues their relative heights and descriptions can be obtained; but we may here observe that most of the Show varieties are the strongest-growing plants, usually from 4 to 5 feet in height. Many of the single varieties are tall, while the Bouquet varieties or Pompons are more slender and dwarf. The bedding varieties are usually the shortest, so that in planting the bedding and Bouquet varieties should always form the two outer rows. When the plants have started into strong growth cover the surface of the soil around each plant with a mulch of stable manure. This will protect the roots during drought. In Dahlia-growing tying is a most important operation; it is imperative that the plants be timely secured, and a constant watch afterwards kept that the ligatures do not become too tight for the rapidly increasing growths.

**INSECTS.**—Growers of these flowers have several pests to contend against. Slugs are very destructive to young plants; a dusting of lime over the plants when moist with dew, or a little placed around the stem, is a good preventive of their attacks. Earwigs and thrips are both troublesome and destructive to the flowers, specially during dry hot summers. Earwigs are trapped by placing small inverted pots partially filled with hay or moss on the stakes, or the stalks of Broad Beans cut from 6 to 10 inches in length, and placed in various positions

about the plants. The insects will, after feeding on the flowers during the night, take shelter in the hollow stem of the bean-stalk, and can be placed in a pail of hot water in the morning. Well syringing the plants and flowers twice a day is the only method of stopping the increase of the troublesome little insect—thrips.

**LIFTING.**—It is most probable that by the middle or end of November the flowerstalks will be completely dead. When this takes place the stems should be cut off to within 8 or 10 inches from the ground, and on the first period of dry mild weather carefully lift all the roots, placing to each its respective name, and pack them in a dry place free from frost until the time arrives around for starting them into growth to obtain a new stock. The following are all good varieties :—

**Show Varieties.**—Admiration, Acme of Perfection, Artiste, Benjamin Crossland, Christopher Ridley, Constancy, Countess of Lonsdale, Cremorne, Criterion, Henry Bond, Flag of Truce, James Cocker, James Service, John McPherson, John W. Lord, John Wyatt, Louise Neate, Leah, Ovid, Prince Arthur, Royalty, Sarah McMullen, Toison d'Or, and Victory.

**Fancy Varieties.**—Barnaby Rudge, Gaiety, Chang, Charles Wyatt, Ebor, Enchantress, Flora Wyatt, George Barnes, Hereules, Henry Glasscock, Letty Coles, Mrs. C. Smith, Mrs. Saunders, Mons. Chauvière, Peacock, Rev. J. B. M. Camm, Regularity, and Singularity.

**Bedding Varieties.**—Rising Sun, Dr. Webb, Sir James Watts, Drap d'Or, Marguerite Bruant, and Mont Blanc.

**Liliputian, Pompon, or Bouquet Dahlias.**—These are remarkably distinct and pretty, many of the flowers produced are not over 1 inch or  $1\frac{1}{2}$  inch in diameter. All the following are worth cultivating—Burning Coal, Dr. Schwebes, Crimson Beauty, German Favourite, North Light, Fireball, Prince of Liliputians, Little Dear, Little Wonder, Louis Rodani, Lady Blanche, and White Aster.

The single varieties are not very numerous. The following comprise the best—Paragon, Cervantesii, aurantiaca, lutea, coccinea, glabrata, and alba.—**FLORIST.**

#### ECONOMICAL METHOD OF SOWING PEAS.

MY remarks on "Early Peas" (page 85) furnished a text for some practical and instructive remarks by Mr. Harding (page 126), especially with regard to protecting Peas from birds. In spite, however, of Mr. Harding's affirmation to the contrary, I still assert that late autumn sowing is often a waste of labour and seed, especially on cold heavy soils or where sparrows are very numerous and voracious. Had I substituted "invariably" for "often" I should have been easily proved in the wrong, as I well know that by close attention good results have followed autumn sowing, on light sandy soils especially. Mr. Harding admits early Peas will not succeed if sown on heavy land, and how many gardens are there where comparatively heavy land prevails! Such was the case at Orsett, and it is the same here. Mr. Harding by good culture preserves his Peas during the winter from frosts and birds, but in the course of a few days "outing" I noticed several rows of autumn-sown Peas completely cut down by frosts, and that too in a favoured part of Kent. Mr. Harding would submit they were sown too early, or were improperly earthed up. No doubt by sowing very late in November but little growth will be made during a severe winter; but what if the early winter be mild, followed say towards the end of January by severe frosts? Many soils, again, if interfered with towards the end of November would be found in very poor condition for seed-sowing. I find the root-action of any crop of Peas very defective should the ground be excessively cold and wet when they are in a young state, and many varieties do not thoroughly recover from the check they thus receive.

With regard to Mr. Harding's selection of Peas, I must express surprise that he has not given some of the "latest new and expensive varieties" a trial, as he would certainly be rewarded by the discovery of several varieties much superior to those older favourites he has named. For instance, Huntingdonian I am convinced is really an improvement on Champion of England: and such old varieties as Auvergne and Laxton's Supreme are far surpassed by Dr. McLean, Marvel, Carters' Challenger, and others—not, perhaps, as far as productiveness is concerned, but more with regard to superior quality. Of the older varieties Veitch's Perfection and Yorkshire Hero are undoubtedly excellent in every respect; but what is the difference, if any, between the two? I

have seen both growing by the acre as well as in private gardens, but I must confess to an inability to separate them.

Although I have taken this opportunity of replying to Mr. Harding's very acceptable comments, the above heading was chosen more with regard to sowing for later crops, and relates to a practice which for aught I know to the contrary is original. I am a believer in tall-growing Peas for one important reason—they are less injuriously affected by either a dry, or wet season than are those of medium growth. Unfortunately many of the best of the tall growers, including Huntingdonian, do not produce pods on much of the lower part of the haulm, and to obviate this waste of stakes and space between the necessarily widely sown rows I decided to try the plan of sowing a medium-height variety in the same rows. The result was most satisfactory in each instance, and I strongly recommend the practice to those with limited space, or who are obliged to economise their stakes. It is particularly suited to those who are in the habit of disposing their rows of Peas at wide distances apart, and filling the intervening spaces with three or more rows of Broccoli or Brussels Sprouts.

The most profitable mixture I have yet tried consisted of Huntingdonian in the centre, and a line on each side about 6 inches clear, sowed with a mixture of Little Wonder and Dr. McLean. The seed was sown thinly, the outside lines earthed up; stakes were put according to the height of the central variety, and a row of Peas resulted that was covered with pods almost from the ground upwards. Huntingdonian was the first to be picked from, this being closely followed by the other two, and which, although unlike in appearance of pods, are still well adapted for cooking together. Probably no three better quality Peas are grown. On the whole I prefer sowing two varieties together—such for instance, as Telephone, with outer lines of Stratagem, Fortyfold, and Princess Royal; Ne Plus Ultra and Omega; Royal Berkshire Marrow and Hair's Dwarf Mammoth, the latter not so often grown for late crops as it deserves to be; Williams' Emperor of the Marrow and Premier, and in fact any tall and medium height varieties.

I do not recommend the practice where the soil is poor and manure scarce, as one variety undoubtedly much impoverishes the other, neither should the seed be sown thickly or the rows be crowded. The rows ought at least to be as far apart as the average height of the central tall variety. Last season especially the tall-growing Peas attained to extraordinary heights, the lower parts of the rows yielding but few pods; but where a medium height variety was sown with them the exuberant growth was checked considerably, and the results compared most favourably with those grown on the old system. No extra labour is necessitated other than drawing three narrow drills instead of one wide one.—**W. IGGULDEN.**

#### A TRIO OF USEFUL PLANTS.

**Euphorbia jacquiniæflora.**—Few gardens where a stove temperature is available should be without this lovely plant. Either in pots or planted out as a climber it seldom fails to give abundance of its brilliant flowers. It also endures cutting for decorative purposes well, the flowers being much appreciated for ladies' hair.

**Staphylea colchica.**—Among plants for forcing this cannot be too highly recommended. It is easily forced, and plants in small pots produce a dozen spikes of fragrant flowers each. The plant may be removed to the conservatory or to the drawing-room, and will keep in good condition for three weeks at least.

**Begonia metallica.**—One of the best of the numerous fine-foliage Begonias. It is easily propagated, makes a good plant quickly, and is admirably suited for decoration, either to form in a group or as a single plant, also for the dinner table. In summer I have known it grow quite 6 inches in the drawing-room, and keep its colour and vigour for two months.—**A.**

#### GLASS STRUCTURES FOR AMATEURS.

(Continued from page 550, last vol.)

**HEATING.**—Great complexity exists in the forms of boilers for heating horticultural structures, but this is often due to the number of parts directly or indirectly exposed to the action of the fire. Those which present the greatest surface and the greatest obstruction to the passage of the fire over its surfaces immediately at the point of greatest heat, are best calculated to abstract the greatest amount of heat from the fuel. Those parts must be at the sides, over, and end of the furnace, for surfaces not acted on directly are of very little value. It is also worthy of note that the greater the surface exposed in proportion to the quantity of water contained in the boiler, the greater will be its



heating capacity. A foot of surface will heat to a given degree a pint of water in less time than it would a quart; thus, a boiler with 3 feet of surface will heat as much water to say 200° as one with 6 feet, the quantity being half in the first case as regards the boiler to what it is in the latter. It is the increase of surface and the diminution of water space that gives to tubular boilers their superiority over those with large waterways—a quantity of water to be heated before any of it passes to where it is required, and a decreased heating surface; the circulation is rapid with the one, in the other slow. Unfortunately the most improved forms of boiler are not made in small sizes suitable for the amateur, and in selecting a boiler it is always advisable to have one capable of heating considerably more piping than it is calculated to do. The saddle form of boiler is still one of the best for small houses, especially those forms that have waterway terminal end and side flues.

In regard to pipes, those 4 inches in diameter are the best, as they retain the heat longer than the smaller do. The flow pipe should ascend from the boiler to the point of return, and the return pipe should descend thence to the boiler, so that an air pipe at the highest part of the pipes will keep them free of air. Avoid dips, they only impede the circulation and diminish boiler power. The joints after caulking with tarred rope may be filled up with cement. In fixing the supply cistern have it on such a level that the flow pipe will not be more than three parts full of water where it makes the return, this to allow for the expansion of the water and prevent running over at the air pipe. The supply of water to the feed cistern should be regulated by a ballcock, and the supply from it be either to the boiler direct near its bottom, or to the return pipe as near the boiler as practicable, and at its passage from the supply cistern there should be a valve to check the water from running back into the supply cistern. The pipes may be on a level in the house or one above the other, and if they have a rise of half an inch in a yard within the house it is ample. To regulate the draught of the furnace there must be either a door to the ashpit so that the draught may be regulated, or a damper in the boiler flue, or both.—G. ABBEY.

#### TEA ROSES.

At the late meeting of the General Committee of the National Rose Society, when the Crystal Palace schedule was under consideration, a member drew the attention of the Committee to the nurseryman classes for Tea Roses. In class A prizes were offered for eighteen, and in class B for twelve. It was pointed out by the Secretary that these numbers must be altered, because the giver of the prizes (Mr. Prince of Oxford) had offered them for twenty-four and eighteen respectively. Twenty-four Teas and Noisettes! The number struck me as exceedingly large, and as Chairman I ventured to suggest that, though it was not a proper thing to look a gift horse in the mouth, yet that surely these numbers were too large; for what member of the Committee could name twenty-four good Teas and Noisettes? A great authority on Teas (Mr. Cant of Colchester) supported me by saying what I scarcely ventured to hint, although I was thinking the same thing—that it was often exceedingly difficult to get twelve good Teas in a box, and it would be almost impossible to have twenty-four. It was felt, however, that we had no alternative but to make the alteration desired by the donor, and so it now stands. But my object in writing this is to ask your rosarian readers if any of them can name twenty-four good Teas and Noisettes, nearly half of which would not have been out of bloom by July 2nd, the date of the Crystal Palace Show?

Several years ago I showed Roses, but some of my friends may remember that Teas used to be my strong point, and I believe I may claim without boasting to be one of the first to discover the beauties of Catherine Mermet, when neither Mr. William Paul or Mr. Robert Baker had it in their collections; and when devoting a large part of my attention to Teas and growing all the varieties then in commerce, after having built dwarf walls on purpose to protect the plants, I have generally had the greatest difficulty in producing twelve good Teas and Noisettes for a box. Catherine Mermet, Alba Rosea or Madame Bravy, Maréchal Niel, Souvenir d'un Ami, Elise Vardon, Devoniensis, Triomphe de Rennes, La Belle Lyonnaise, and sometimes Madame Trifle—all these are good, but how about the rest? There are plenty of Teas left, you say. Yes, but let us look at them. You go round to Niphetos. Here she is, with drooping head, snow white in colour, and looking from a distance lovely; but lift the bloom up, and you will ten to one find her all out of form. Then there is Madame Margottin; in nine cases out of ten she is quartered or of bad form. I can only recollect one really grand Madame Margottin at a show, and that was exhibited by my friend Mr. Baker at Torquay, and I

believe wrenched the first prize. Then there is Souvenir de Paul Neyron, which is generally too small for a box, and a number of lovely yellow and sulphur varieties, which are such poor growers—like Reine du Portugal, Louise Savoie, and others—that very seldom can a good bloom be obtained from them out of doors.

There have been numbers of good new varieties, so I am told, but I have only seen one—Madame Lamhard—which really attains to first-class honours. But now we are flooded with this new race, this *belli teterrima causa*, "Hybrid Teas." Are Mr. Bennett's hybrids and Mr. George Paul's Cheshunt hybrids to be admitted into Tea boxes? Cheshunt Hybrid has always found a place therein, but most judges have shrugged their shoulders as they found it amid those dainty beauties, and wished in vain that they could turn it out or disqualify the box. But now we are threatened with a flood of Hybrid Teas, which, so far as I can understand, bear the same relation to Teas as La France does. If these, then, are to be admitted into an exhibition stand of Roses we can understand the numbers fixed upon by Mr. Prince, although most rosarians will, I think, agree with me in deeming that one of the most lovely sights of a Rose show—the box of Teas and Noisettes—will be entirely ruined. Is it too late to alter this? If not, I would beg the donor of these prizes to consider the matter and report his decision to the Committee.—WYLD SAVAGE.

#### A SELECTION OF POTATOES FOR 1881.

HAVING just made up my list of Potatoes for the coming season I send you an abstract of it. All the sorts named are good, but they vary much in their distinguishing features; therefore I have attached letters to indicate their strong points. These letters afford a justification (good or bad as the case may be) for the selection at every point, and will, I hope, be useful to cultivators who are not posted up in minute details. *x* Signifies particularly well adapted for exhibition; *t* signifies high table quality; *c* signifies that the variety is what we term a "heavy cropper;" *m* signifies peculiar adaptability for market culture, combining heavy cropping with a strong constitution.

Ashleaf, *t*; Avalanche, *t x*; Beauty of Hebron, *x*; Beauty of Kent, *t x*; Bedford Prolific, *t x*; Blanchard, *x*; Bountiful, *t x*; Bresce's Prolific, *x m*; Brownell's Beauty, *x c*; Centennial, *x*; Climax, *t x*; Covent Garden Perfection, *t c*; Crimson Ashleaf, *x*; Dalmahoy, *t c*; Early Market, *t m*; Edgcott Seedling, *t x*; Excelsior Kidney, *t x*; Fortyfold, *t m*; Garibaldi, *x*; Grampian, *t x*; Heather Bell, *t x c*; Ice Cream, *t x c*; International Kidney, *x*; Johnston's Downshire, *t c*; Improved Peachblow, *x*; King of Potatoes, *t x c*; Lapstone, *t x*; Magnum Bonum, *t m*; Manhattan, *x c*; Matchless, *t x*; Model, *x*; Mr. Bresee (syn. Peerless Rose), *t x*; Porter's Excelsior, *x*; Radstock Beauty, *x c*; Rector of Woodstock, *x*; Red Emperor, *x*; Salmon Kidney, *x*; Schoolmaster, *t x c*; Scotch Blue, *x*; Scotch Champion, *m*; Snowflake, *x m*; Striped Don, *t x*; Triumph, *t x c*; Vicar of Laleham, *x c*; Wiltshire Snowflake, *t x*; Woodstock Kidney, *t x*.

A selection from the foregoing should comprise Myatt's Ashleaf, Beauty of Kent, Bedford Prolific, Covent Garden Perfection, Early Market, Edgcott Seedling, Fortyfold, Grampian, Hooper's Round White, Johnston's Downshire, King of Potatoes, Magnum Bonum, Rector of Woodstock, Schoolmaster, and Triumph. These fifteen will make for anyone a really fine collection.—SHIRLEY HIBBERD.

#### FLORIFEROUS HYACINTHS.

I SHALL be glad to know whether any attention has been called to the remarkably floriferous character of the Hyacinths this season, as after many years' experience neither my gardener nor I have seen them so fine. The bulbs have been sent direct from the same Dutch grower for the last twelve years, and I always have the same old favourites, as, only seeing them once a year, there is no time to tire of their beauty; whilst I have found that with novelties it is price that constitutes the great difference in the majority of cases. I have generally had a fine display, many of the spikes being really fit for exhibition, but this year they are extraordinary, with two, three, four, and in one case six spikes. I give a list of some of the most remarkable specimens; and at the same time I would observe that although some of the spikes may be said to belong to offsets, in many cases they spring from the centre of the bulb, and apparently from the very heart.

Why do the bulbs never furnish such fine spikes of bloom the second season, no matter how carefully they have been grown in the interval? Of course the young offsets can only produce weak spikes, and must improve with age. Is it the practice to prevent them flowering until they are considered marketable bulbs, or are they allowed to flower annually until they have attained such distinction? A few hints might be acceptable to

some readers, as I remember reading many years ago, in one of the numbers of the *Cottage Gardener*, an article from the pen of the late Mr. Donald Beaton, complaining of the fact that gardeners were in the habit of throwing away the offsets of their Tuberoses, under the impression that they could only be grown under the sunny skies of Italy. I fancy it was before we found that American Tuberoses even surpass the Italian.

*List of Multiple-flowering Hyacinths.*—L'Ornement de la Nature, four central spikes, three of them large; Garrick, one very large central spike, and one good offset; Argus, two large central spikes, and one good offset; Frederick the Great, three large central spikes, and one small side spike; Grande Vedette, one very large and two small central spikes, also two small side spikes; Lord Wellington, one grand central spike, and one smaller central spike; Victoria Alexandrina, one large and five small, all central spikes.—C. M. MAJOR.

#### THE GOOSEBERRY CATERPILLAR.

I WISH to know something definite about the Gooseberry caterpillar. I am always being told that it is reared from the egg of a moth, but I find by putting tan round Gooseberry bushes that the caterpillars are kept at bay, so that the young or eggs must be in the ground below the bush. But supposing there are caterpillars on the bushes, will they breed themselves? I will not assert that the first lot is not produced from the butterfly, but I have had proof that afterwards they produce themselves. Tan has no effect on wall trees, so the caterpillars must be in the wall. An explanation of this will much oblige.—COMBER.

["COMBER'S" letter was submitted to an entomologist, and the following is his reply:—

"The principal Gooseberry caterpillar is that of the moth named *Abraxas grossulariata*, the economy of which may be thus briefly described. The eggs, which produce the only annual brood of caterpillars, are deposited by the parent moths during June or July, the time varying with the season, but they are usually on the wing for several weeks. Occasionally the eggs are discovered in patches. The moth in the usual way, however, only places one egg on a leaf, hence not much can be done towards checking its increase by the removal of eggs. Emerging in August, or earlier, the caterpillars feed for some time, but grow slowly in some seasons. On the approach of autumn they prepare for a winter sleep. Some rest on the bushes almost unprotected; some draw together a withered leaf with a few threads, ensconced in which they descend to the ground; and some lay up in odd corners, such as nooks on palings, empty flower pots, and so on; hence there is no doubt that tan placed round the bushes might do something to prevent the return of wanderers in the spring, and also kill any that may be upon the earth. With this insect, as with others, it now and then happens that what we suppose is due to some precaution on our part arises from a natural cause, which has stopped the development of an insect enemy. As a rule these caterpillars thrive better in a dry cold winter than in a moist one; some die, and some are eaten. The remainder reappear about the end of April or May, when many persons suppose that they have just hatched, not connecting them with the caterpillars that were seen upon the bushes in the autumn. When full fed the caterpillar turns to a chrysalis upon the food plant, forming a very slight cocoon, within which the yellow and black chrysalis is very conspicuous, and should be removed wherever seen. It is not in the power of these caterpillars to produce either eggs or young caterpillars, therefore anything alive that may be detected in the interior of one of them is the larva of a parasite, usually that of some tiny fly. Though commonly associated with the Gooseberry, the caterpillar of *A. grossulariata* feeds also upon the Currant, preferring the black variety. The caterpillar of a lesser species of moth, *Halia Wavaria*, occurs on the Gooseberry. This is at once distinguishable by the black warts which stud the pale green body. Every gardener has seen another species doing mischief—the pseudo-caterpillar of the Sawfly, *Nematus Ribesii*, which infests Gooseberries, feeding in companies with tails raised in the air, and upon which some interesting observations appear in the volume for 1880, page 431."]

#### MARÉCHAL NIEL ROSE ON ITS OWN ROOTS.

I WISH to say a few words in support of Mr. Bardney's remarks (page 146) regarding Maréchal Niel Roses on their own roots. Last year we purchased from a nurseryman two Maréchals in pots which had been worked the same year on the Manetti or Briar—I cannot positively say which—for planting in a warm greenhouse. When they came to hand I turned them out of their pots to see in what condition the plants were, and found they had made a

number of roots, but were all then apparently dead, at least all the young fibrous roots. The plants had most likely been grown in a rather high temperature, probably plunged in bottom heat to force a certain amount of growth, and afterwards placed in a much lower temperature, and in consequence they would be severely checked. After seeing the state the roots were in I deemed it advisable to defer planting that season and to grow them in pots until the following year. I therefore waited until they started, then reduced the soil a little from the roots, and repotted them in the same size pots. One of the plants grew as well as could be expected, the other kept alive and that was all. As before stated, I intended planting them out this year, which I did about a month since. Last week I noticed the large plant drooping its leaves, while the small one that had scarcely made any growth the previous year was doing well. How to account for it I did not know, so I determined to lift and carefully examine both, when to my surprise the small plant was rooting well and the large plant that had grown so freely the previous year had not a live root. The stock proved to be dead, also the stock of the other, but having been worked lower it had emitted roots from the union to support itself. I know several plants of the Maréchal doing well on their own roots, and have grown them successfully so, but not otherwise.—J. RICHARDSON, *Calverton Hall, Notts.*

ON page 147 I referred to the Maréchal Niel Rose under the charge of Mr. Hanagan, Hooton Hall, and wish to correct the statement in relation to the number of blooms cut from his tree last year. I wrote entirely from memory, and find from a letter now before me that three thousand blooms were cut instead of four hundred, as stated. An account of the number of blooms produced by the tree was not kept previous to 1880, but in that year it was estimated that fully one thousand more expanded than in 1879. The tree in question was planted in August, 1874, and was then about twelve months old, though very small. It had not been pushed forward in its early stages, as it was thought it would not be required for planting that season. However, two large plants on the Briar died, and the small one upon its own roots was then planted out. It continued growing until late in the season, and the following spring a strong shoot was noticed coming from the bottom; this was allowed to grow a few feet in length, when the whole of the previous-made wood was cut away. The shoot grew rapidly and strongly until it reached the top of the greenhouse wall, 10 feet in height, which is the length of the clean stem alluded to. The point was then taken out, and the plant allowed to branch to cover the roof. A few good blooms were cut from the plant in 1876; the number yearly increased, and Mr. Hanagan says seven thousand blooms is under the total number cut from this fine tree. There is, he informs me, every prospect of it producing three thousand again this year. Two shoots are now observed starting from the clean stem half way up; and Mr. Hanagan thinks, after blooming is over and these shoots are a few feet in length, of cutting the whole of the old wood away, and allowing these shoots again to occupy the roof. He contends this adds fresh life and vigour to the plants, as he has done the same with other plants of this fine Rose under his charge from time to time, and always with success. This I consider is a wise course to pursue. What says "OXONIAN?" The strain of producing thousands of blooms annually must in time exhaust the vigour and energies of any Maréchal Niel, or any other variety of Rose. By cutting it back growth will be vigorous and the production of flowers smaller for a year or two, thus allowing the tree to recruit itself to again produce in due time thousands of blooms. With judicious care in this respect, which Mr. Hanagan knows well how to exercise, the tree in question may be kept in good health for many years.

If young plants of Maréchal Niel, say twelve months old, were allowed to carry all the blooms they would produce, it must considerably arrest their vigour and impede growth the following year; therefore the majority of the blooms should be picked off and the strength of the plant devoted to the production of wood until thoroughly established. The vigorous habit of young plants on their own roots and their freedom to bloom is, I fear, too frequently the cause of insignificant growth the following year. Then the Maréchal is condemned as unsatisfactory, and will not do on its own roots, while the fault is entirely due to the cultivator, who is desirous of having all the blooms the plant will produce, and in consequence exhausts its energies and cripples the plant in its early stages. It is a well-known fact in growing specimen plants, say of Heaths, that if allowed to bloom from their earliest stages a much longer time would be required to produce a specimen than if the flowers were picked off or never allowed to form. What cripples young Vines or Peach trees sooner than heavy cropping



at once after planting? The same facts apply with equal force in my estimation to the young Maréchal Niel Rose. Mr. Hanagan has this Rose doing well on the Briar, and no signs yet of going off; but he says, "I prefer them on their own roots, as I have lost two large plants on the Briar by canker."—WM. BARDNEY.

### ANGRÆCUMS.

(Continued from page 154.)

THREE of the best species have already been described; but as there are several other forms of scarcely less beauty or interest, a few additional notes are requisite to indicate the chief characters of the genus. Some of the most recently introduced species, though possessing attractions of no mean order, are, unfortunately, still comparatively rare in cultivation, this being due either to the difficulty of propagating them, or to the circumstance that very few importations are received. However, the majority of those mentioned in the following notes are in the collections of the chief nurserymen and amateur Orchid growers.

*Angræcum Kotschyi*.—Another of the beautiful species which Messrs. Veitch & Sons have brought into notice, and for which they obtained the coveted award of a first-class certificate at the meeting of the Royal Horticultural Society, October 12th, 1880. It not only possesses sufficient attractions to render it a worthy companion for the best of its genus, but the peculiarity of its structure is additionally interesting, and on the occasion named the plant exhibited received much attention. Like its allies it is epiphytal in habit, being found on trees near Zanzibar. The shining green leaves are rather short and broad; the creamy white flowers being 1 to 1½ inch across, and produced in pendulous racemes about a foot long. Each of the flowers is furnished with a reddish-tinted spur 6 or 7 inches in length, but, unlike all other *Angræcums*, it is curiously twisted somewhat in the manner of tendrils. This is the peculiar part of the plant's structure, and has given rise to several opinions as to its probable utility to the plant. The Rev. G. Henslow, when describing the plants exhibited on the occasion named, referred to it, and hinted at the possibility of the spurs not only resembling tendrils in appearance but in function also, and that they may possess a certain sensitive-ness which would enable them to twine round contiguous objects, thus supporting the rather heavy inflorescence. The surmise appears very reasonable, but further observations are required to substantiate it. However, apart from this, *Angræcum Kotschyi* is a charming and graceful Orchid, and I understand that it will be one of the choice novelties Messrs. Veitch intend sending out in the present year, so that growers will have an opportunity of adding it to their collections.

The species is named in honour of Theodor Kotschy, who found it a year or two previous to 1840, and it has been since discovered by several other travellers. The plants that have now been introduced were, I am informed, originally sent by Dr. Kirk to Gerald Waller, Esq., from whom Messrs. Veitch obtained them.

*A. bilobum*.—One of the better known forms, which is included in most of the large trade collections of Orchids, and occasionally seen in gardens where those plants receive more than ordinary attention. It is intermediate in vigour and habit, being less strong in growth than *A. eburneum*, and more robust than *A. Kotschyi* or *A. falcatum*; but it thrives very well in a basket, and may even be grown upon a block, though the former system of culture is generally the more satisfactory. The plant is rather compact, with dark green moderately broad leaves, two-lobed at the apex, and arranged in a distichous manner. The flowers are about 1½ inch in diameter, white with a tinge of rose, each having a spur 2 inches in length; they are borne in long pendulous racemes, and possess a slight fragrance. Specimens were found by Mr. Bowdich when travelling in West Africa near Cape Coast Castle, and from his widow Messrs. Loddiges obtained plants more than forty years ago, thus first introducing it into English and probably to European gardens.

The woodcut does not represent the plant full size, being reduced nearly half, but it well indicates the habit and chief floral characters that mark the species.

*A. Ellisii*.—Comparatively few persons have had an opportunity of seeing this handsome species in flower, for although it has been in commerce some years it is still rather scarce. A few years since, however, there was a very beautiful specimen in Mr. Day's fine collection of Orchids at Tottenham, said to be one of those originally introduced from Madagascar by the Rev. W. Ellis, after whom the species is named. That plant has flowered at least once to my knowledge several years ago, when it was greatly admired by all who were fortunate enough to see it. To Mr. B. S. Williams is due the honour of placing the plant in

commerce; and on April the 6th, 1870, he exhibited it before the Royal Horticultural Society, deservedly obtaining a first-class certificate.

The plant is of rather noble habit, having handsome dark green leaves 9 or 10 inches in length and 2 inches broad, cut at the apex into two unequal lobes, and arranged in the characteristic two-ranked or distichous manner. The flowers are pure white and possess a very pleasing fragrance; they are about 2 inches across, with narrow reflexed sepals and petals; the column standing very prominent, and the pale brownish spurs vary in length from 6 to 8 inches. The spikes are frequently 2 feet long, gracefully arching, and bearing about twenty flowers. Though an



[Fig. 44.—*Angræcum bilobum*.

epiphyte it thrives best in a pot, like the other *Angræcums* of moderately strong growth.

*A. Scottianum*.—One of the diminutive forms of the genus, but none the less pretty on that account for its distinctness from allied species, and the delicacy of the flowers impart considerable interest to the plant; yet it is still somewhat rare, and I have only seen specimens in a few of the largest collections, but that is probably due to the fact that the three or four years it has been in this country has not been long enough to permit very extensive propagation, and I have not heard of any importation during that period. When better known it will no doubt be included in most collections of moderate extent, as it deserves the attention of all growers who do not limit themselves to the merely showy Orchids. It is epiphytal in habit, with narrow terete leaves, very dissimilar from most other *Angræcums*; they are tapering or awl-shaped, about 4 inches long, and one-eighth to a quarter of an inch in diameter, channelled in the upper surface and ridged below. The flowers are of a moderate size, very delicate in texture; the lip an inch or more across, pure white, with a narrow yellowish spur 3 to 4 inches long. The peduncle is slender and usually bears but one flower. The species is a native of the Comoro Islands, and I believe first flowered in this country at Waltham-



stow in 1878 in Mr. R. Scott's collection of Orchids, and in honour of that gentleman it has received its name.

*A. pellucidum*.—A species from Sierra Leone, whence it was obtained by Messrs. Loddiges, and in their nursery it flowered in November, 1842. The plant is of rather bold habit, with large bright green leaves frequently exceeding a foot in length. The flowers are white, of a delicate semi-transparent texture, having a finely fringed labellum, and are produced closely on racemes of moderate length. Like the majority of species it usually flowers during the winter months, and thrives either on a block or in a basket suspended from the roof of a warm house. Though not by any means common it is fairly well known, and is included in most of the large trade collections. A coloured plate of it was published in the "Botanical Register" thirty-seven years ago, or about two years subsequent to its first flowering at Hackney.

*A. pertusum*.—Like the last-mentioned this is a native of Sierra Leone, but I do not know to whom is due the credit of first introducing it to England. It appears, however, to have been in cultivation several years before *A. pellucidum*, as it was sent to Kew about 1850 by Messrs. Jackson of Kingston, but had previously flowered with Messrs. Loddiges, for it was noticed in Paxton's "Magazine of Botany" in 1840. It is a very distinct form, with long narrow dark green leaves, and slightly nodding racemes 6 to 7 inches long of small closely placed creamy white flowers, which in their mode of arrangement are suggestive of *Dendrochilum glumaceum*. The spurs are comparatively short, and with a well-marked yellow tinge, which gives a peculiar appearance to the inflorescence.

*A. Chailluanum*.—Named in honour of M. Du Chaillu, by whom specimens were first sent to Kew from Gaboon. Another traveller in the same district also sent some to Kew, where a plant flowered in May, 1866, and from that an admirable plate was prepared for the "Botanical Magazine." The genus is still rare, and the only London nursery in which I am aware it is grown is that of Messrs. Veitch at Chelsea, where it has flowered several times, but owing to its scarcity it is necessarily expensive. The plant is rather dwarf in habit, but moderately strong compared with some of its delicate allies. The leaves are 6 inches in length,  $1\frac{1}{2}$  inch broad, slightly wavy and two-lobed at the apex, being arranged in an imbricate manner. The flowers have narrow acute white sepals and petals, and a yellow spur 4 inches or more in length, the raceme being sometimes 8 inches long and elegantly drooping. It is a handsome species, and deserves to become more generally known. It may be grown on a block.

*A. distichum*.—This is very interesting owing to the peculiar form and arrangement of the leaves, and the diminutiveness of the plant. It affords a very striking contrast compared with *A. sesquipedale* both in the size of the flowers and general appearance. While the latter has the largest flowers in the genus and order and is of bold habit, *A. distichum* possesses unusually small flowers, certainly among the smallest of the order; and the short stems in tufts, with closely imbricated dark green leaves, still further add to its distinctiveness. In the habit of the plant there is little to suggest affinity with the *Angræcums* to casual observation, but there is a family likeness in the small white spurred flowers, which are produced from the axils of the leaves. However, by some authorities, for instance the younger Reichenbach, I understand that it is considered sufficiently distinct to be assigned to another genus—namely, *Aeranthus*, but the older name is still retained in the chief collections, the other, *Aeranthus distichus*, being simply given as a synonyme. The plant is found growing upon the bark of trees in the neighbourhood of Sierra Leone, whence it was first imported by Messrs. Loddiges about 1835; so that it is an old inhabitant of our gardens, though by no means well known, perhaps owing to its being more curious than beautiful, though the neatness of the plant will always ensure it some admirers. The annexed woodcut represents a branch of the natural size with the flowers near the apex, and conveys a good idea of the chief characters of the plant.

*A. caudatum*.—Another of Messrs. Loddiges' introductions from Sierra Leone, and first appeared in this country about the same time as the one just described. It cannot be considered as hand-

some, but it deserves a brief notice from its singularity. The leaves are pale green, 10 inches long and slightly drooping; the raceme is a foot in length, bearing several flowers with narrow acute greenish sepals and petals, a rounded white lip with a cut margin and green terminal point, and long pale green spur frequently 9 inches long and 2-lobed at the lowest portion. It usually flowers in the autumn, but is rarely seen in good condition.

*A. falcatum*.—A dwarf and pretty species, which is especially interesting from its extending the geographical range of the genus to Japan, a locality widely separated from what might be termed the headquarters of the species. It was originally known under the name of *Limodorum falcatum*; that is before the genus *Angræcum* was established, and under that name it was figured in the "Botanical Register" in 1818. The specimen there represented flowered a month or two previously at Wormleybury in the collection of Sir Abraham Hume, who had obtained it through Dr. Roxburgh. In the following year a plate was also published in the "Botanical Magazine," prepared from a plant in the Horticultural Society's garden. The plant was first observed by Thunberg in Japan on the hills amongst bushes, but he did not record whether it was terrestrial or epiphytal in habit, though probably the latter is the case, as it resembles the other species, and at all events such treatment suits it better in cultivation. As already stated it is dwarf, compact, with narrow leaves, white fragrant flowers of medium size, and an upcurved spur 2 or 3 inches long. Messrs. Veitch exhibited a specimen at one of the Royal Horticultural Society's meetings in 1868, and were awarded a certificate.

*A. fragrans*.—As the only species which possesses any known economical value this may fittingly conclude the list of chief *Angræcums*. It is a native of Mauritius and other islands in that latitude, and is also said to be found in India. In the former it bears the name of *Fahum* or *Phaum*, and owes its utility to the fragrant foliage, said to have "the odour of the Tonka Bean and the flavour of Bitter Almonds." An infusion is employed as a medicine to assist digestion, and is reputed to be efficacious in cases of pulmonary consumption. The plant has been introduced to France, where it is known as *Isle of Bourbon Tea*, and has been successfully employed in medicine. No doubt some collections in England may include specimens of this plant, but I have not seen it in a living state.

The foregoing notes will suffice to give some indication of the range of variation in this peculiar genus; but only some of the most remarkable or best known species have been selected, as the genus is rather large, and has been increased in recent years by the discovery of several forms which are either not in cultivation at present or extremely rare. Among these are *A. articulatum*, *A. Hildebrandtii*, *A. hyaloides*, and *A. Christyanum*, which have all been noticed in the "Gardeners' Year Book" since 1872. Some of these scarce species are undoubtedly attractive, and will probably sooner or later find their way into cultivation.—L. CASTLE.

#### PARAFFIN CASKS.

THE best method of cleansing paraffin casks to render them suitable for converting into plant tubs, is by burning the insides. If one end is removed and an armful of dry shavings is set on fire, the wood, being saturated with oil, will readily ignite. As soon as the oil has been sufficiently burnt out, the flames may easily be extinguished by turning the cask upside down, or by placing a damp sack or piece of matting over the top. The charcoal thus produced on the inside of the cask will assist in keeping the soil sweet when used for plants, and in purifying the water if used for store casks. Paraffin is very searching and quickly penetrates every part of the wood, and no amount of washing will remove it, because the water will not mix with it and cannot penetrate into the crevices. When burning is objectionable the casks should be well scoured out with boiling water, in which a quantity of soda crystals or potash has been dissolved (soapsuds will partially answer this purpose), and when thoroughly dry two or three coats of good paint can be applied; this will have the effect of preventing the oil oozing out for a time, but the moist soil will eventually cause the paint to peel off, when the oil will be sure to appear again.—J. H. S.

WE have here ten of these tubs in use containing the following plants—Two *Cytisuses*, two *Myrtles*, and six *Agapanthus*, all of which have done remarkably well in them. The plan we adopt to cleanse them is to place a bundle of straw inside the tub and set fire to it. We do this as soon as received and before they are cut through the middle. When we think they have burned sufficiently without injuring the tub we turn them upside down,



Fig. 45.

*Angræcum distichum*.

which soon extinguishes the fire.—J. RICHARDSON, *Calverton Hall, Notts.*

[The mode of preparing paraffin tubs for plants has now been made sufficiently clear to all.—ED.]

#### THE BLUE ROMAN HYACINTH.

IN answer to your correspondent "CULTIVATOR OF BULBS," we have only to say that the blue Roman received the same treatment as the white Roman Hyacinth. We find the first bulbs were potted on the 15th October, 1880, and the plants were in flower January 8th, 1881. If they had been potted in August with the whites no doubt they would have been earlier. The foliage is certainly rather plentiful, but so are the flowers, which in our opinion afford ample compensation. We will not fail to remind your correspondent next season when our plants are in flower, nor would we mind sending him a pot gratis if he will favour us with his address.—JONES & SONS, *Coton Hill, Shrewsbury.*

WITH me this is a weedy grower as compared with the white kind—the leaves overtopping and so partially hiding the flower-spikes. This spoils it as a decorative plant, but its flowers are certainly very pretty for cutting. Under precisely the same treatment it is fully a month or six weeks later than the white kind. "A CULTIVATOR OF BULBS" experience of it agrees with mine in all particulars; it may be that we both have had unripened bulbs. If by any possible kind of treatment it can be grown as well as its white counterpart, it will be a most valuable plant. Here *Scilla siberica* is far preferable.—DUBLINENSIS.

#### CULTURE OF VALLOTA PURPUREA.

ALL amateurs who have a greenhouse should grow the old Searborough Lily, as its cultivation is very simple. The plant commences flowering at the end of August, and a few pots of *Lilium speciosum* and album arranged with them would make the greenhouse quite gay during the late summer months. Those amateurs who intend growing it should procure some bulbs at once. The compost employed should consist of turfy loam with a little decayed manure and leaf soil, with sufficient coarse sand to keep the soil open. In potting place three bulbs in a well-drained 6-inch pot; if bulbs are scarce have one in a 3-inch pot, but I recommend the former practice where possible, as the plants will flower profusely and make a beautiful display. In potting place some of the roughest of the compost over the drainage, then three parts fill the pots with soil, and press it down gently to prevent it sinking too much. If 6-six inch pots are used place the bulbs a little distance apart to allow the growth of offsets. Tie the bulbs to a small stick to keep them steady, give a good watering through the rose of a watering can, and transfer the pots to the greenhouse, assigning them a position near the glass, and the bulbs will soon commence growing. Never permit them to be insufficiently supplied with water, and in the summer months they should be sprinkled overhead. When the pots are quite full of roots and the flower stems appearing weak guano water may be given twice a week. After flowering remove the flower stems, as they exhaust the bulb; the pots can then be placed in any sunny part of the greenhouse so as to have the bulbs well ripened. The soil must not be allowed to become dust-dry at any time, not even in the winter months. The *Vallota* is increased by offsets. The small bulbs can be taken in the spring, and are either potted single in small well-drained pots, or placed in pans in a compost of half loam and leaf soil with a little sand, and if placed in a warm part of the greenhouse they will soon produce roots.

One mistake amateurs are apt to make in growing *Vallotas* is in overpotting. To flower the plants well they must be rootbound, and three bulbs in a 6-inch pot will not require a larger pot for three or four years providing the drainage is open. I formerly grew a number of *Vallotas* for conservatory decoration; 10-inch and 8-inch pots were as full of roots as possible, so much so that the pots were frequently burst. With some potting and top-dressing had not been done for seven years, yet the plants flowered very freely; when in flower they were transferred to the conservatory and afterwards returned to the greenhouse, attended to with water, and year by year the same process was repeated. I employed liquid manure made from sheep dung and soot, which I believe are the best stimulants that can be given to plants. I have recommended guano water for amateurs, as it is more easily obtained.—JOHN NUNNS, *Wimbledon Common.*

FUTURE OF GARDENING.—Mr. Roberts' letter at page 151 touches a very important subject with regard to fruit trees, but

he does not allude to a sad item of culture in Devon and Cornwall, about which it may be useful to say a few words. These counties are famed for the production of Apples, but wherever you go now orchards seem to be in a state of decay—all the trees covered with lichens and many prostrate. If a young tree is planted—if the mode of placing them in the ground deserves that term—the site chosen is one overshadowed by old trees. Why is not a new piece of field taken in sometimes? Farmers do not seem to think their orchards of any great consequence; and as for pruning, it appears as if outside their consideration altogether. Probably, if they procured the best varieties, which they do not appear to do, it might prove to their advantage. If culture were attended to we should certainly require less fruit from America.—R. I. L.

#### CARRINGTON MOSS IMPROVED AND CULTIVATED.

ABOUT six miles to the west of Manchester there is in Cheshire a tract of land called Carrington Moss. On the other side of the river in Lancashire there is a larger tract of the same nature known as Barton Moss and Chat Moss. These Mosses were originally almost as soft as a soaked sponge and full of water. To make a line of railway across the two latter puzzled the engineering skill of Stephenson. The materials first used for the foundations were lost, as they sunk out of sight by reason of their weight. At last the difficulty was overcome by employing the branches of trees and hedges. This great swamp is gradually being brought under cultivation and made to yield good crops of grain and other farm produce. First on Barton Moss great ditches or dykes 10 and 12 feet deep were opened, and roads formed between them. Then wedge draining was tried and found to answer well. On soft spongy land such draining is simple work easily understood. Wedge-shaped drains 4 feet deep or more are cut to a point at the bottom. Wedge-shaped fibry sods are cut to fit the drain about a foot from the bottom, and thus an open triangular space is left which carries the water to the deep ditches mentioned. No intelligent farmer or gardener could fail to notice the effect of such draining on visiting a farm there. The removal of the water solidifies the land considerably. Over each drain the land naturally becomes a furrow, and drains at some distance apart make a flat piece of land into a ridge-and-furrow piece. Houses one storey high had to be built on piles. Horses in ploughing and working the land had to wear flat-soled leathern boots, for without them their feet sunk too deeply for work. These uninviting swamps are now being brought under the influence of the farmer and the market gardener. Excellent root crops, Potatoes, Turnips, Mangolds, and Carrots are now produced with corn, hay, and Clover succeeding. The Carrots from the Moss are large, straight, and clean, and Celery grown there cannot be surpassed. The Marrowfat Peas in the dry years of 1868 and 1869 were first-rate.

Carrington Moss, probably four miles long and two broad, belongs to the Earl of Stamford and Warrington, who is fast converting it into manageable and productive land. From the newly reclaimed land the crops are sold annually by public auction at remunerating prices. If such improvements can be made, what might not be done on the peaty boggy lands of Ireland? I think no land there can be worse or more uninviting than this in its natural state.

Carrington village or hamlet is about eight miles from Manchester, three from Sale, and is remarkable for the large orchards attached to the farms of the place. Sale itself, now a large and wealthy suburb of Manchester—at least often considered as such—was once covered with Heather and called Sale Moor, is one of the best places in the north of England for farming and gardening. For these purposes land is readily let at £5 and £6 per statute acre; but the soil here is dry and easily worked, resting on a substratum of sand and gravel.—A. PETTIGREW.

#### LIBONIA PENRHOSIENSIS.

WHEN well grown this is one of the prettiest and most useful plants for flowering at midwinter, and is easily obtained in good condition. March is a good time to insert cuttings, which when rooted may be potted into 60-sized pots and placed in a close frame. In May remove them out of doors to harden-off. At the end of May they may be planted out on a south border fully exposed to the sun, and remain there until September, when they will be neat pyramidal specimens with abundance of glossy leaves. Take them up and pot in 48-sized pots, and arrange them in a close frame until well established. They can then be removed to an intermediate house where the temperature ranges from 45° to 60°, and by Christmas you will be rewarded with hundreds of bright red flowers on each plant. Good plants of

*L. floribunda* may be obtained in the same way; they retain their foliage through the flowering season, but are not so showy as *L. penrhosiensis*.—STIFFORD.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Sir Trevor Lawrence, Bart., M.P., in the chair, the following candidates were duly elected Fellows—viz., Richard A. Boissier, J. C. Burns, T. H. S. Escott, M.A., James Green, W. A. Hall, T. J. H. Hawkins, Mrs. Lacy, Dr. Alfred Meadows, Robert W. Melvil, Mrs. Osborne, Saul Samuel, C. M. G. Francis, R. Saunders, Mrs. H. W. Trevelyan, Mrs. Wake, Peter S. Yapp, A. E. Young. William Brown and Mrs. Stringer were elected guinea members.

— WE are informed that the Committee and members of the Brixton Hill, Streatham, and Clapham Horticultural Society have recently presented a TESTIMONIAL TO MR. THOMAS TODMAN, gardener to J. Connell, Esq., Bushydown, Tooting, to mark their unanimous appreciation of services rendered by him in the capacity of Judge at their exhibitions from the commencement of the Society in 1859. Mr. Todman has long been known as a most successful exhibitor and skilful gardener, and an eminent hybridiser of florists' flowers, particularly with Azaleas, Pelargoniums, Fuchsias, Verbenas, and Primulas.

— A CORRESPONDENT writes—"I am glad '*P. R., Wigan*,' has brought the single-flowering PELARGONIUM CHARLES SMITH under the notice of the readers of this Journal. There are many fine single Zonals sent out by Mr. Pearson of Chilwell, Notts, and among the best for all purposes is this variety. It is most effective for flowering in winter. The trusses are immense and the colour superb. It is superior to Charles Schwind, although that is a very good one and resembles the one under notice in brilliancy of colour, but is not so free-flowering and the trusses are smaller. All admirers of Zonal Pelargoniums ought to have Louisa Smith and Charles Smith, both raised by Mr. Pearson."

— MR. R. P. BROTHERSTON, writing under date of March the 4th, sends the following upon the WEATHER AND VEGETABLES IN SCOTLAND:—"We are again having severe weather. To-day is the roughest we have experienced this winter. Snow has been falling all day, and a cold easterly wind blowing. Last Saturday morning outdoor work was stopped by snow, and we have been able to do nothing since. On the morning of March 1st we had 15° of frost, the next morning 20°. The only vegetables which passed through the last frost were Broccoli and Celery; even German Greens decayed at the points, Drumhead Cabbages and Savoy's all decayed, and Brussels Sprouts were entirely eaten by pheasants. I did not lose a single Broccoli, having taken the old-tried precaution of lifting the plants and laying them in with heads to the north. A neighbouring gardener, who merely pressed the plants back with a spade without lifting, has had great loss. Cottagers, too, who lifted their Drumhead Cabbages and buried the heads in the ground have saved them. It is impossible to say as yet the extent of damage to shrubs, &c. Laurustinus are all killed, however, and I expect Roses also. Last winter we had 3½° below zero; this winter 2° above zero was our lowest, yet the damage is greater."

— As will be seen in our advertising columns, FIVE HUNDRED ORCHIDS IN BLOOM are to be sold at Stevens' rooms on Friday next. The plants will be on view after two o'clock this day (Thursday), and on the morning of the sale.

— A WRITER in "The Gardener" remarks as follows upon the decorative usefulness of *PTERIS UMBROSA*:—"Considering the great demand for ornamental plants for all sorts of decorative purposes, it is matter for surprise that this most useful and ornamental Australian Fern is not cultivated to a greater extent. It can be grown into large plants in comparatively small pots, and is, consequently, a most suitable Fern for furnishing vases and baskets. It grows, when shifted on into 10 or 12-inch pots, 3 feet high. Its fronds are pinnate, and the lower pinnæ also become pinnate. Its colour is of the most vivid glossy green. A great recommendation to it is that it can be grown in a cool house; and it is singularly free from the attacks of insects, such as thrips, which are so troublesome in the case of many Ferns. It is also a Fern of the easiest possible growth, thriving well in a mixture of loam, leaf mould, and a little sand."

— FRUITS of *SECHIU EDULE* may now be seen in Covent Garden Market. It is the Cho-Cho of the West Indian Islands, where it is cultivated, both the fruits and large fleshy roots serving as food. It is included in the Cucumber family, and does not possess any very distinctive character, being of climbing habit, with yellow unisexual unattractive flowers, and cylindrical fruits tapering from the middle to each end, 4 to 6 inches long and of fleshy substance. They are considered a very wholesome food in the West Indies. The plant has been introduced to Madeira, and fruits are frequently sent thence to Europe. During the past summer a plant at Kew ripened its fruit in the succulent house.

— ON several occasions last year we referred to the new AZALEA MRS. GERARD LEIGH, and we have again to note it as flowering in Mr. B. S. Williams' nursery, Upper Holloway. It is unquestionably one of the best of the numerous handsome amoena type Azaleas, and it well deserves the attention of cultivators. The bright rosy crimson flowers are of neat form, about 1½ inch in diameter, and produced with the characteristic freedom of the race. The plant naturally flowers early, and with a little forcing can be obtained in excellent condition at the dullest time of the year.

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th instant, at 7 P.M., there will be an exhibition of instruments, consisting of various kinds of hygrometers and of such new instruments as have been brought out since January 1st, 1880. During the evening the President will give an historical sketch of the different classes of hygrometers, and will also describe such forms as are exhibited.

— MR. W. H. SHRUBSOLE, F.G.S., has written from Sheerness as follows relative to GISHURSTINE:—"As an amateur naturalist I do a good bit of shore wading, I was never able to keep the sea water from penetrating my boots till I used Gishurstine. Now I can always keep my feet dry. The article is so good that it deserves a better name."

— THE following are among some recent GARDEN APPOINTMENTS—Mr. James Read, Arley Hall, Northwich, has been appointed gardener to Mrs. Cox, Moat Mount, Mill Hill, succeeding Mr. Beattie; Mr. Alexander Yule, Seaforde House, Co. Down, has been appointed gardener to Mrs. Huth, Wykehurst, Cuckfield; Mr. Daniel Elkins, late foreman at Rendcombe Park, Cirencester, becomes gardener to A. Cator, Esq., Trewsbury House, Cirencester; Mr. Alfred King, Ditton Hill, Surrey, has been appointed gardener to Admiral Thompson, Brynallt, Hertford; and Mr. D. Clements, Westbrook, Sheffield, succeeds Mr. Brake as gardener to C. G. Hill, Esq., Arnot Hill, Notts.

— WE have to record the death of one of the few remaining officers who served in the Peninsular war. Lieut. WM. ANDREWS NESFIELD died at his residence, 3, York Terrace, Regent's



Park, on the 2nd inst., in his eighty-eighth year. Mr. Nesfield was the son of the late Rev. William Nesfield, Rector of Brancepeth, in the county of Durham; he was educated at Winchester, and Trinity College, Cambridge; was cadet at Woolwich in 1809, and joined in the Peninsula, and was engaged in the operations in the Pyrenees. After leaving the army his taste for painting led him to become one of the earliest members of the old Water Colour Society, of which he was for thirty years an active exhibiting member, his contemporaries and friends being Turner, Copley, Fielding, Cox, Prout, and Stanfield. Later in life he took up landscape gardening as a profession, which his education as an engineer at Woolwich and his talent as an artist (as quoted in Ruskin's "Modern Painters") well qualified him to fulfil. In this capacity he was constantly consulted in the improvements and alterations of the London parks and Kew Gardens, and he planned the Horticultural Gardens at Kensington.

— RELATIVE TO THE WEATHER IN NORTH DURHAM  
Mr. P. Ferguson of Monkwearmouth sends the following note: "A week ago we had two or three fine days, and would fain have sung with that genial Scot—'Gloomy winter's noo awa.' But no such luck; ever since Saturday, the 26th February, we have had an almost continuous fall of snow or sleet, with an increasing wind that ultimately developed into one of the most disastrous and terrific gales that have made the present winter so memorable. At the time of writing (5th March) this hurricane of wind and blinding snowstorm has been raging for forty-eight hours without the slightest sign of abatement. With scarcely a furrow turned or a grain of seed sown, with the root crops spoiled in the fields and stock having been hand-fed for over three months, agricultural prospects are indeed miserable in this district. Garden work is also at a complete standstill." Another correspondent writes—"The oldest man living does not remember such an extraordinary beginning of the month of March. The damage done by the frost, snow, and rain has been very great, nearly all kinds of vegetation having been seriously injured; spring-flowering plants are nearly destroyed, and much loss has occurred from damping to Cucumbers and Melons in dung-heated frames, as no ventilation could be given for several days owing to the violence of the wind and the drifting snow. The weather is now milder, a change having occurred on Monday."

### SNOWDROPS.

SNOWDROPS are now in full beauty, and are to be found near almost every country dwelling. Various methods are adopted in planting them, some as if in a wild state, others bordering shrubs. There is another way worth notice, that is planting them in geometrical designs. Under large trees is a very suitable position. A beautiful flower garden could be easily established in the dead of winter. Snowdrops are also useful for table decoration. For a small table a tin about 2 feet 6 inches across should be provided; a round block should be placed in the centre on which to stand the chandelier, or if there is gas a Palm or Dracæna may occupy the centre; the tin should be then filled with tufts of well-flowered Snowdrops. They must have spaces between them filled with moss, which still more improve their appearance. This simple mode of table decoration when tastefully executed cannot fail to give satisfaction.—A. G.

### ROYAL HORTICULTURAL SOCIETY.

MARCH 8TH.

THE advancing season was well shown at Kensington on Tuesday, for the exhibits had so far increased in numbers that, besides several small groups in the Council-room, an unusually fine display of Cyclamens, Amaryllises, Orchids, and miscellaneous plants was provided in the conservatory, the attractions being still further increased by a lecture from the Rev. G. Henslow, and a selection of music by a military band. There was a remarkably large attendance of the members of the Floral Committee, and the Fruit Committee was also

well represented, the meeting altogether proving eminently satisfactory, and notwithstanding the showery weather visitors were fairly numerous.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. Mr. Sidney Ford sent a dish of a seedling Apple, Margaret Henrietta, a pretty Apple but without flavour. Mr. McIndoe, The Gardens, Hutton Hall, sent a seedling Cucumber called Verdant Green, but the internal colour was so green as to disqualify it. Mr. Douglas, Loxford Hall Gardens, sent a seedling Cucumber from Tender and True, which was considered not quite so good as its parent. Messrs. Cutbush and Son, Highgate, sent samples of Nuneham Park Onion of very fine quality, to which a cultural commendation was awarded. Mr. Strachan, The Gardens, Bulwick Park, near Wansford, sent specimens of Giant Zittau Onion, a fine brown-skinned Onion, to which a cultural commendation was awarded. Mr. Sage, gardener to Earl Brownlow, Ashridge, sent a dish of Musa Cavendishii, remarkably well grown. The bunch had 235 fruits upon it. A cultural commendation was awarded. Mr. Cox of Redleaf Gardens exhibited fruit of Lemons and Oranges from Cyprus, for which a letter of thanks was awarded. Mr. Green, gardener to Sir George Macleay, Pendell Court, Betchingley, Surrey, sent a branch of Coffea arabica var. angustifolia, laden with fruit and showing great luxuriance of growth and superior cultivation. A cultural commendation was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. In the Council-room Mr. B. S. Williams, Upper Holloway, exhibited a group of new plants, very noticeable among them being the magnificent Imantophyllum Martha Reimers, which is described below. A specimen of the new Azalea Mrs. Gerard Leigh was shown, respecting which a note will be found in another column. Several plants of Primula sinensis fimbriata alba magnifica were staged, the blooms being of great size and good form. Actinopteris radiata var. australis was represented by a specimen in excellent condition, for which a cultural commendation was awarded. The species is a pretty little Fern very much in the way of Rhipidopteris peltata, and the variety appeared to differ very slightly if at all from the type. The fronds are divided in a fan-shaped manner into linear dark green segments, the stipes varying in height from 3 to 6 inches. Mr. C. Edmonds, Hillingdon, Middlesex, sent plants of Cyclamens, several of which were very fine, especially one named Mrs. Harry Veitch, white with a purple throat, the petals being broad and the flowers numerous. Purple King had flowers of smaller size, of good rich colour, also abundant; good white varieties being Miss Lillian Cox and Charming Bride, for which certificates were awarded. Mr. F. Moore, gardener to C. Pickersgill, Esq., Blandon Hall, Bexley, exhibited a specimen of Lycaste Skinneri giganteum superbum in a 32-size pot, and bearing six large handsome flowers, the sepals broad, and the petals with a rich crimson tinge. The plant was in excellent condition. The same exhibitor also sent a flower of Lycaste Skinneri virginialis, the beautiful white variety of this well-known Orchid. A vote of thanks was accorded. G. F. Wilson, Esq. Heatherbank, Weybridge, sent two cut spikes of Odontoglossum Alexandræ, one bearing thirteen and the other sixteen flowers, which were large, of good form, and with a fine purplish tinge in the sepals. A vote of thanks was accorded.

Mr. C. Green, gardener to Sir George Macleay, Pendell Court, Betchingley, sent flowers of Canna iridiflora var. Ehemanni of great size and deep crimson colour. A note appended stated that the plant from which the flowers had been gathered had been in bloom for the past seven months treated as a sub-aquatic—namely, planted with the crown about 9 inches above the surface of the water in a warm tank devoted to Nymphæas. It is not rested during the winter like other Cannas, and is still flowering, having eight growths about 7 feet high. Fine flowers of the beautiful Vanda Cathcartii were also sent, and a vote of thanks was accorded. Mr. W. Masson, gardener to Dr. Alfred Meadows, Poyle Park, Colnbrook, Bucks, obtained a cultural commendation for a number of large Cinerarias, with flowers of great size and excellent colour, but very loose and of bad form, the plants also being rather coarse. Mr. R. H. Vertegans, Chad Valley Nurseries, Birmingham, obtained a vote of thanks for a basket of double Cinerarias with flowers of good form, chiefly purple and crimson in colour, some having the colours mixed. Mr. James, gardener to Mrs. Watson, Redlees, Isleworth, exhibited a box of extremely fine Cineraria blooms such as he is noted for. They were very handsome in shape, and comprised some rich and varied colours. Two plants were also shown—one, Mr. H. Little, for which a certificate was awarded, and the other Mrs. Little, with flowers of excellent form but of rather peculiar pale purplish tint, or no doubt that would have received a similar award. Messrs. John Laing & Co., The Nurseries, Forest Hill, sent a plant of Begonia Roezli with its small bright coral-coloured flowers. Mr. H. Gohn of the Springwell Nursery, Middlesex, sent plants of Crimson Beauty Primula, the flowers of good colour but rather poor in shape. Messrs. Wm. Paul & Son, Waltham Cross, obtained a vote of thanks for a basket of Primrose Scott Wilson, the plants being in good condition and bearing their purplish blue flowers profusely. J. T. D. Llewellyn, Esq. of Penllergare, Swansea, sent a pot of the diminutive Crocus Sieberi collected at Florence thirteen years ago. The flowers are of a lilac purple tint, and rise about 2 inches above the soil.

In the conservatory as noted above the display was unusually bright, the stage along one side of the entire path being entirely

occupied with large and beautiful groups of plants. The most noticeable were those from Messrs. Veitch, the Orchids and Amaryllises being particularly attractive. Among the former were several specimens of the fragrant *Dendrochilum glumaceum* with numerous spikes of its diminutive flowers. The charming *Angræcum citratum*, recently figured and described in these pages, was represented by a specimen flowering very freely in a shallow pan. The pretty *Dendrobium Ainsworthi* was in good condition, its rich purple-lipped flowers being numerous. One specimen of *D. crassinode* had a growth about 3 feet long bearing twenty fine flowers. Many other handsome Orchids were also observable, among them being several good varieties of *Cattleya Trianae* and *Epidendrum macrochilum album*. A specimen of *Rhododendron Veitchii* was shown with abundance of its beautiful large white crisped flowers. *R. Taylora* was also exhibited in good condition, and near them was a group of *Rhododendron Early Gem*, a dwarf form, with oval dark green leaves and purplish-lilac coloured flowers of medium size, but produced very freely. It appears a useful plant for decorative purposes owing to its dwarfness and floriferousness. Plants of *Guelder Rose* 2 feet high in 32-size pots had a profusion of their balls of white flowers. The double purple *Cineraria* Mrs. Thomas Lloyd was in similarly good condition. *Cyclamens* were contributed in vigorous health, but the Amaryllises were the chief feature of the groups, a large number being exhibited of various shades of colours, some very rich, and the flowers generally of excellent form. A gold medal was deservedly awarded for these fine collections.

Mr. B. S. Williams also obtained a gold medal for a large and handsome group of Orchids, including some fine specimens of *Cypripedium villosum*, one central plant about a yard in diameter having more than three dozen flowers, while several others of less size had from twelve to twenty. *Dendrobium Freemanii* had two growths, each bearing twenty of its warm purple-tinted flowers. Two large healthy specimens of *Phaius grandifolius* had a dozen spikes each. A plant of *Masdevallia ignea* had more than thirty flowers, but rather small, owing to a check the plant had received, as the variety is really a very good one both in depth of colour and size of flower when in good condition. *Cymbidium eburneum* was well shown, also the pretty *Odontoglossum Rossii majus*, and many others which cannot now be particularised.

The General Horticultural Company contributed an attractive and elegant group of fine-foliaged and other plants. Very noticeable were specimens of *Echmea* (Chevalliera) *Veitchii* and *Tillandsia Saundersoniana*. The former has been in flower for a long period, the spike of closely imbricated crimson bracts with their serrated margins being very distinct. The latter has recurved glaucous green leaves with reddish spots, and a large spreading inflorescence of flowers which were not open, but the pale yellow bracts rendered it attractive. Small plants of *Dracæna bella* occupied the centre of the group. This is a charming dwarf variety with narrow crimson leaves, and admirably suited for table decoration, as it colours well in a young state. The elegant *Adiantum Bausei* was in good form; several good specimens of *Nephrolepis Duffii* being also exhibited, with *Aralias*, *Palms*, &c. A silver Flora medal was awarded.

Sir Trevor Lawrence, Bart, Burford Lodge, Dorking (Orchid grower, Mr. C. Spyers), exhibited a very beautiful collection of Orchids, chiefly *Odontoglossums*, some of which had, however, been lent by Messrs. Veitch and Williams to permit the representation of a larger number of species and varieties. More than twenty forms of *Odontoglossum* were shown, some in extremely fine condition; one specimen of *O. Alexandræ* having a long spike with sixteen flowers. The pretty *O. roseum* had seven spikes of its rich rose-coloured flowers. *O. Rossii majus* had five spikes of its large flowers; while the peculiar and distinct *O. Uro-Skinneri* had a long spike of blooms, of which the purple marbled lip is so striking. Among other Orchids was a good example of *Miltonia cuneata* with about a dozen spikes, some bearing ten flowers, *Cymbidium eburneum* being also well represented. A silver-gilt Flora medal was awarded.

*Cyclamens* occupied a considerable space, three good collections being staged—namely, from Mr. H. B. Smith, Ealing Dean; Mr. R. Clarke, Twickenham; and Mr. Charles Edmonds, Uxbridge; to each of whom a silver Banksian medal was awarded. All the plants were in excellent condition and flowering very profusely, the collections differing chiefly in compactness of habit and height of the flowerstalks. Messrs. Osborn & Sons, Fulham, were awarded a silver Banksian medal for a bright group of decorative plants, comprising *Azaleas*, *Cytisuses*, *Spiræas*, *Ericas*, *Hyacinths*, *Cinerarias*, *Richardias*, &c., tastefully arranged. A bronze medal was also accorded to Mr. Aldous, Gloucester Road, for a similar group. Messrs. W. Paul & Son, Waltham Cross, exhibited ten boxes of fine *Camellia* blooms, *Alba plena* being particularly fine, and other good varieties were *L'Avenir*, excellent form, clear pink; *Countess of Derby*, similar but larger; *Reine des Fleurs*, fine crimson, very useful variety; *Ninfa Egeria*, white, good substance and excellent form; *Fimbriata*, white, very symmetrical; and *Mathotiana*, a large flower, rich crimson colour. A silver Banksian medal was awarded. Mr. R. Dean, Ealing, sent some pretty *Primroses*; and a group of plants was contributed from Chiswick, containing a good assortment of useful decorative plants, the fine specimens of *Pteris serrulata cristata major* being especially noticeable.

Mr. S. Ford, The Gardens, Leonardslee, Horsham, staged a very fine collection of Apples and Pears in excellent condition. The

Apples were the most numerous, and were greatly admired for their plump fresh appearance. About sixty dishes were shown, and the silver Banksian medal awarded was well deserved.

First-class certificates were awarded for the following plants:—

*Cineraria* Mr. H. Little (James).—A very distinct and striking variety, quite a new break in *Cinerarias*. It might be appropriately called tricolor, for the flowers have three clearly marked concentric bands of colour, the marginal one about a quarter of an inch wide, deep maroon, the next crimson, and the centre white. The flowers are of good form, about 1½ inch in diameter.

*Primula The Queen*.—Mr. J. Tomkins, Showell Green Nurseries, Birmingham, obtained a certificate for this variety, the flowers of which were fully 2½ inches in diameter, of fine substance and good outline, but not so flat as might be desired. It is one of the Fern-leaved type, of neat habit, the colour of the flowers being white with a slight pink tinge and a yellow eye.

*Phaius tuberculatus* (Sir Trevor Lawrence).—A remarkable and pretty Orchid from Madagascar. The leaves were similar to those marking the genus, but not so large as in the majority of species. The flowers were 2 inches across, in spikes about 9 inches high; the sepals and petals ovate acute and white, the upper slightly arching; the lip was about 1½ inch long and 1 inch broad, constricted in the middle; the base and sides were yellow thickly dotted with a reddish tint, with a tuft of yellow hairs at the base, and the three bright yellow ridges in the centre; the apex was white and pink, with a crisped margin. Four to six flowers were borne in a spike.

*Cyclamen persicum* vars. *Lilian Cox* and *Charming Bride* (Edmonds).—These were two good white varieties, very similar in appearance, but differing slightly in the breadth of the petals, which in both were of good width and substance. The habit was compact, and the flowers numerous.

*Amaryllis John Heal* (Veitch).—Flowers of excellent form; division broad, white at the tip with a band down the centre, deep scarlet at the sides, greenish in the centre. Certainly one of the finest formed Amaryllises that have been obtained; the broad and rounded petals and good general outline rendering it unsurpassed in that respect.

*Amaryllis Royal Standard* (Veitch).—Flowers neat in form and size, similar to the last in colour, but richer and with less green in the centre.

*Amaryllis Miss Alice Gair* (Veitch).—Large flower; broad divisions of a very rich vermilion colour. An excellent variety, and scarcely equalled in brilliancy of tint.

*Asplenium Baptistii* (Williams).—A very distinct species with bipinnate fronds 1 foot to 18 inches long; the pinnæ narrow, serrated, dark green, half an inch broad, and 3 to 5 inches long. The plant is a native of the South Sea Islands, and was introduced about two years ago. It was certificated by the Royal Botanic Society last year.

*Imantophyllum miniatum Martha Reimers* (Williams).—A noble variety of *Imantophyllum* obtained by Mr. Williams from the Continent. The plant shown had fine rich green leaves 2 feet or more in length; two umbels of flowers, one on a peduncle 2 feet in height and comprising nearly thirty large blooms. The corollas are 3 to 4 inches long, brilliant orange scarlet, with a lighter centre. We give the name as rendered by Mr. Williams, but we presume the variety is the same as that figured in the "Flore des Serres" last year as *Marie Reimers*, and which was one of several in Van Houtte's nursery, raised by M. Theodore Reimers, gardener to Madame Donner, near Hamburg.

SCIENTIFIC COMMITTEE.—Mr. Schofield gave some account of an experiment of M. Alfred Dumesnil, who grew in baskets for ornamental purposes a number of plants without earth, but surrounded with moss and apparently in some nutritious matrix. They were exhibited in The Square, Solferino, at Rouen. Mr. W. G. Smith exhibited cut blossoms of *Narcissus Tazetta* var. *floribundus* growing wild (naturalised) at St. Michael's Mount, Cornwall, flowering three months earlier than near London. He also exhibited "Jew's Ears," *Hirneola Auricula-Judæ*, gathered from semi-decayed Elder branches at Ely. Mr. Maclachlan reported on the Wheat culms attacked by some insect, and considered peculiar that it should be a Chalcid—a parasite, there being no evidence of the usual host—a dipterous insect—having previously attacked the Wheat. Rev. H. Crewe exhibited *Galanthus Redoutii*, *Shaylockii*, *spirescens*, and a small species with a yellow ovary, probably *reflexus* (?). Mr. Pascoc exhibited twigs attacked by a *Thelephora* from Pava, Brazil. Dr. Masters exhibited a specimen of Hazel with an enormous protuberance caused by hypertrophy, possibly due to overpruning. He also showed galls on *Picea polita*, the Japanese Spruce; also a remarkable malformation on the calyx of *Eucalyptus*, in which the five lobes had become separated. It was forwarded by Baron von Müller. Proliferous flower of Foxglove, from Dr. G. Bennett of Sydney, with the corolla regular, from the centre of which the shoot proceeded. Mr. Boscawen forwarded *Narcissus triandrus* and a leaf of Paris Daisy undermined by the larva of a moth.

LECTURE.—The Rev. G. Henslow first alluded to a fine group of Amaryllises exhibited by Mr. Veitch, and made some remarks upon the order Amaryllidæ to which it belongs. He spoke of the uses to which *Agave americana* is put, as for fibre and an intoxicating drink, &c., while *Hæmanthus toxicarius* supplies a poison to the Hottentots. The common Daffodil is also said to be extremely poisonous. He next entered on a description of the principles and methods of fertilisation of flowers, describing the structure of stamens



and pistil with the view of illustrating the process by Orchids, of which Messrs. Veitch, Sir Trevor Lawrence, and Mr. Williams contributed very fine groups. He first pointed out methods of attraction afforded by plants to insects in order to secure fertilisation by intercrossing, that although the corolla or the perianth was the normal organ, yet bracts and calyx were sometimes utilised by being brilliantly coloured. *Anthurium Schertzerianum* and *A. Andreanum*, as well as *Tillandsias* illustrated this peculiarity. This change of function, so to say, often took place, and at the same time illustrated the principle of compensation, by which one organ undertook the functions of another, not infrequently becoming modified accordingly. Some plants of Guelder Rose and double Cinerarias were taken to illustrate this, to

which corollas had grown abnormally at the expense of the essential organs, or stamens and pistils; a plant of *Xylophyllum* with flattened branches superseding leaves also showed the same phenomenon. Mr. Henslow then proceeded to describe the structure and method of fertilisation of several Orchids, such as *Phalænopsis*, *Dendrobium*, *Cattleya*, and *Coryanthes*, principally following the details as explained by Mr. Darwin in his work on the "Fertilisation of Orchids."

#### VIOLET "ODORATISSIMA."

MR. CANNELL of Swanley has sent us blooms of the above variety of remarkable size and substance, and deliciously perfumed.

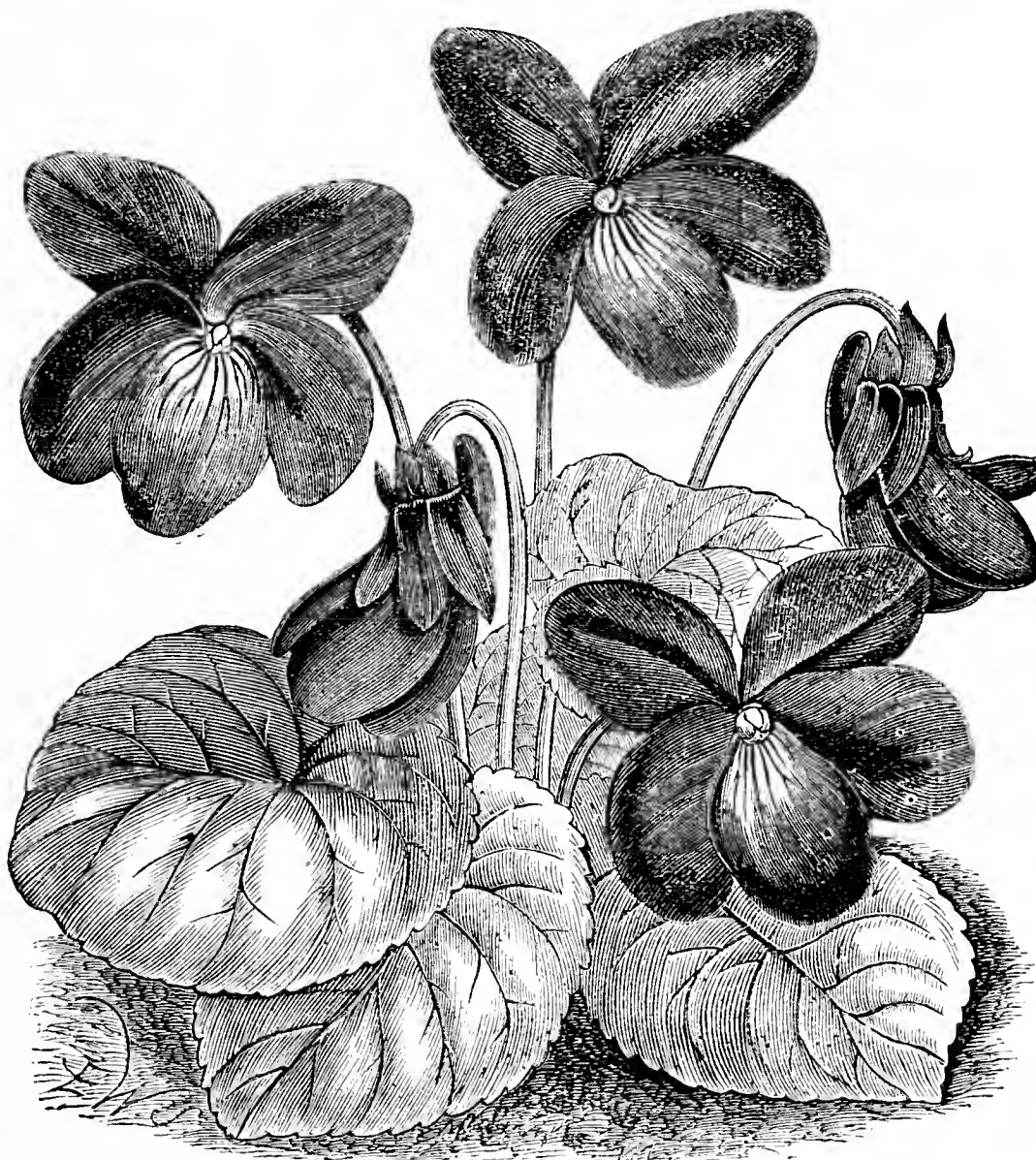


Fig. 46.—VIOLET ODORATISSIMA.

Last year Mr. Abbey wrote as follows on this Violet:—"It has fine blooms, freely produced, and very sweet; it greatly surpasses the Russian, Czar, Giant, single white and single red." The flowers we have received confirm that statement. They have also very long and stout footstalks, which add greatly to their "bunching" and using in bouquets. How far the soil of Swanley has contributed to the production of such fine flowers and how much of his "invigorator" Mr. Cannell has given to the plants we know not, but larger and more fragrant Violets we have never seen. The annexed engraving by Mr. Smith, which we have obtained from Swanley, shows this excellent variety in good condition.

Some of the flowers sent to us were more than  $1\frac{1}{2}$  inch across and of a bright pleasing colour. Many of our readers, we doubt not, will endeavour to produce flowers of Violet odoratissima similar to those represented, and they may succeed with young plants established in good soil and a suitable situation.

CINCHONA CONSUMPTION.—A writer in the *Colombo Observer*, referring to this subject, says:—"I do not think I am overestimating the number of Cinchonas that will be planted in 1880 throughout the island at 20,000,000; allow 5,000,000 for failures,



and add 5,000,000 for plants planted in previous years and now alive, and it will give you 20,000,000 Cinchona trees, which in five years will yield, either by taking strips and mossaing, or by the shaving process, about 10,000,000 lbs. of dry bark a year." Mr. Ferguson, in his *Ceylon Directory*, estimates the production of Cinchona bark for the world at 13,471,000 lbs., of which Ceylon is put down for 150,000 lbs.; "but when," remarks the correspondent referred to, "it produces 10,000,000, as I believe it will in 1885, the total production of the world will exceed the demand of 1876-78 by 10,847,000 lbs. The question therefore arises, Will the demand for Cinchona bark in 1885 equal the supply, or will the bark become unsaleable except at unremunerative prices?"



## KITCHEN GARDEN.

WITH March a busy season usually commences, but the presence of snow in many localities, and the unfavourable state of the ground for the reception of seed, will necessitate prompt attention in preparing it at the earliest opportunity. Onions and Parsnips should be sown as soon as possible, also good breadths of Early Horn and James's Intermediate Carrot, reserving the main sowing for winter use until April. Leeks also should be sown when the ground is in a fit state. Sow early Turnips—Early Munich is valuable. Lettuce and Radishes from this time forward should be sown about every three weeks. A successional sowing of Peas and Broad Beans must also be made, sowing some of the early Peas when the main crop kinds are commenced with, so that there may not be any break in the succession. Where the soil is not heavy and the snow has gone Asparagus beds may be lightly forked over, and the alleys prepared for planting with Cauliflowers. When the requisite quantity of Asparagus roots are taken up for forcing a corresponding number of roots should be planted annually, deferring the planting, however, until the tops of the seedlings are visible, as they succeed best when starting into growth. Complete planting out Horseradish. Spinach may be sown between the rows of Peas.

## FRUIT HOUSES.

*Figs.*—The earliest forced Fig trees in pots will now have the fruit swelling freely, and should be well supplied with liquid manure at a temperature of 70° to 75°. Continue the night temperature at 60° to 65°, and 75° to 85° from sun heat with free ventilation, closing at 80°. Syringe the trees twice a day to keep red spider down, also to secure a genial condition of the atmosphere. Fig trees permanently planted out will, if forcing was commenced as advised, be making rapid growth, and will require attention in removing all overcrowded shoots and stopping those intended to make well-developed spurs for the second crop. This thinning and stopping the shoots is highly necessary, as it renders the trees more fertile and affords more light and air to the swelling or ripening fruit. There must not be any deficiency of moisture in the border, supplying weak tepid liquid manure abundantly.

*Peaches and Nectarines.*—In the earliest house the fruit will shortly commence stoning, during which period the temperature must be kept as equable as possible, being careful not to unduly excite the trees by a too high night temperature, nor give a check by draughts of cold air in the daytime. The night temperature may range from 60° to 65°, and 70° to 75° in the daytime from sun heat. Attend to tying the shoots to the trellis as they progress, and syringe twice a day with tepid rain water to keep red spider under; and if it appear promptly apply an insecticide, for under no circumstances must this pest be allowed to remain. Disbudding must be carefully attended to in succession houses, removing those shoots that are not required, having the leading shoots tied down, taking care not to overcrowd them. Thin the fruit gradually, leaving those in sufficient quantity that are well exposed to light and air until the final thinning. Fumigate the trees upon the first appearance of aphides.

*Melons.*—The first batch of Melon plants in houses will now be growing well, and should not be stopped until they have advanced quite two-thirds of the distance they are intended to be trained. To prevent crowding every alternate lateral should be rubbed off. Fruit may be expected at the second or third joint on the laterals. When the pistillate flowers are expanded fertilise them every day, having the soil rather dry at the roots of the plants, and secure a dry atmosphere, continuing this until the fruit commences swelling, then stop the shoots one joint above the fruit. To obtain a succession of fruit remove all the flowers from some of the plants and stop the laterals at the second or third joint, removing every alternate lateral, and these will break again and show fruit freely. Do not earth up the roots until the fruits are swelling, first giving a thorough soaking of water, and moderate amount of soil only will be necessary to grow the first batch; and the crop also must be moderate if the plants are intended to carry a second, two or three (at most four) fruits to each plant. Maintain a moderately moist atmosphere in bright weather by damping available surfaces morning and evening, and a gentle syringing overhead at closing time, which should be as early in the afternoon as is safe, and so as to raise the temperature to 85° or 90°. Ventilate from 75°, but be careful in giving air so as not to lower the temperature, nor admit cold currents of air; 70° to 75° should be maintained by day artificially, falling 5° on cold nights.

*Cucumbers.*—The weather at the commencement of the month was very winterly, rendering extra firing necessary to maintain the night temperature between 65° and 70°. In the daytime 70° to 75° must be secured, and 80° to 85° with sun heat, ventilating from 75° and closing at 80°, when the house should be damped and the foliage lightly syringed, but the latter only on fine afternoons. On bright days the top heat should be turned off for an hour or two at midday to lessen the necessity for excessive ventilation. Stop the growths one or two joints beyond the fruit. Thin out old foliage and encourage fresh shoots, but be careful not to overcrowd them. Water will be needed more frequently, and liquid manure occasionally, according to the condition of the plants. Those becoming exhausted may be restored by removing the surface soil between the roots with a small fork, supplying fresh loam previously warmed, following with a supply of weak liquid manure at 90°. The cold weather lately experienced will render it necessary to apply linings to dung-heated beds made up a few weeks ago. When the bed is reheated be careful to allow the escape of steam, especially when the sun is powerful. Add a little more soil as the roots spread over the surface; water carefully, and do not damp the foliage at present. Train and peg down the shoots at the joints as they advance. In making up hot-beds in pits or frames the materials must have been thoroughly incorporated and prepared by repeated turnings. For frames choose a sheltered situation, but well exposed to the sun. If the situation be wet employ a good layer of faggots as a foundation, and have the bed not less than 20 or 24 inches wider than the frame on all sides, and carry it up about 4 feet above the faggots, treading it well down as it is made. The frame may then be placed on. In about a week the bed may be levelled, a thin layer of turves being placed grass side downwards over the surface, and in the centre of each light raise a hillock of soil about 10 inches high and with a flattened top a foot across. When the heat in the hillock is from 85° to 90° the plants may be put out. Night coverings will be necessary to maintain a suitable night temperature of 65° to 70°.

## MUSHROOM HOUSE.

Beds made-up in early autumn are now exhausted and should be renewed. Fresh materials may be prepared by shaking out the fresh horse droppings from the litter with any short material. There is no necessity to dry it unless very wet, and then it should be spread on the floor of an open airy shed, or thrown into a heap to dispel excess of moisture by fermentation, turning it over about twice a week. When the excessive moisture is expelled it may be made into the bed, treading and beating it as firmly as possible. In a few days the bed may be spawned, but if the heat exceeds 90° wait until it declines to between 75° and 80°. Make holes at 9 to 12 inches apart every way and 2 inches deep, inserting in each a piece of spawn about 2 inches square. In a week or ten days cover with 2 inches thickness of rich

turfy loam, beating it firmly and smooth with the back of the spade. In about six weeks Mushrooms will appear, when careful sprinkling with tepid water will be needed to keep the surface moist. Beds that are becoming exhausted may be improved by a good soaking of liquid manure at a temperature of 100°.

## THE BEE-KEEPER.

### SEASONABLE HINTS.

[THE following hints were prepared before Mr. Cheshire's calendar for March appeared last week. But I venture to think their insertion may still prove seasonable, especially in these northern parts where winter still holds unmitigated sway.—W. R.]

NOTWITHSTANDING the almost arctic severity of the winter, stocks that have been properly prepared have generally wintered well; that is to say, they have come through thus far with comparatively little loss of strength or waste of stores. In inland localities where the frost has maintained its hold till now, and the snow is still deep, the opportunity for a cleansing flight has occurred so seldom that soiled combs are found in a good many hives, generally, however, in those only that had not been sufficiently contracted to enable the bees to keep the whole interior warm with an ordinary consumption of food. A hurried examination a fortnight ago showed that nearly all my stocks had patches of brood in all stages and many of them young bees—a proof that breeding can go on even during a period when the external temperature is frequently below zero.

There is considerable danger in making the necessary overhaul of stocks after a long period of confinement. If the first fine day be taken for this purpose, as is very generally recommended, the very act of opening the hives will cause the bees to sally forth with such haste that, failing to mark their locations as they ought to do after a long confinement, many will return to the wrong hives, and thus endanger the lives of the queens. The large number of cases of queen-encasement observed during or after such commotions is entirely owing to the presence of strange bees in the hives, and not, as Mr. Abbott so ingeniously suggests, with a view to exciting the queens to lay eggs. Certainly, where any suspicion of short stores exists, the first opportunity must be taken of certifying whether or not food is required; but there need be no disturbance caused by so doing. It is only necessary, as late in the day as possible, to turn back the quilt without any smoke until the cluster is reached. A hurried glance at the top of the combs will show by the amount of sealed honey visible whether anything further requires to be done. In cases of necessity nothing is so good at this season as well-made candy cake with or without flour. Having a supply at hand in thin slabs, one of these can be quickly pushed under the quilt.

A more thorough overhaul should be made after the bees have had a flight on several successive days. With as little disturbance as possible notice must be rapidly taken of the following points—viz., the amount of stores still available, the presence or absence of a queen or brood, the amount of dead bees or *débris* on the floorboard, the condition of the combs as to dryness or mouldiness, and, in localities where foul brood may be suspected, whether any trace of it is visible in the combs. If it be possible to remove any combs, so as to confine the bees into less space, this may be done at the same time; but if there are many hives to go over, other requirements should be merely noted down to be attended to when all needful appliances may be ready to hand.

Such an examination is very interesting, presenting as it does in every separate stock a different problem for immediate solution. What to do with queenless stocks or with those having queens we wish to save and which are yet too weak to risk longer as they are, how best to supply the want of honey or pollen, how to deal with the first discovery of foul brood, and generally how to assist every stock in maintaining or increasing its strength as much as possible—such are some of the questions that thrust themselves all together on one's attention. The limits of this article forbid my giving more than the following hints.

1, Contract the brood nest by removing all combs which the bees cannot cover, and closing in the division boards. 2, Maintain the chaff packing until the bees have increased to cover six or eight frames. 3, Supply flour candy to keep up breeding until natural pollen is being gathered, after which commence syrup feeding in small quantities, and give pea flour in the open air. 4, Transfer from damp or soiled hives to clean ones, and give clean combs where these are available. 5, Clear out dead bees and

*débris* from all other hives. 6, Put bees of infected hives on clean combs or sheets of foundation after twenty-four hours quarantine, and feed with both syrup and flour candy which have been treated with salicylic acid. Melt up all infected combs, scald and fumigate hives and frames, and take care that no other bees do any robbing while doing so. 7, Join queenless bees to the nearest stock by shaking all the bees from both stocks into a common box, afterwards running them in as a swarm, and caging the queen for twenty-four hours. 8, Pack weak stocks into a common hive with only a thin partition between, giving separate entrances. When one of the queens is required elsewhere, remove the divider and allow the stocks to amalgamate.

It is to be borne in mind that from this time forward, probably till April, the strength of our stocks may be expected to decrease steadily, owing to the loss of old bees exceeding the gain from breeding. Consequently everything should be done that tends to husband their strength. Entrances should be contracted and shaded when snow is on the ground; as little disturbance as possible should be made; heat should be economised by means of warm packing and necessary supplies of saccharine food; pollen substitutes and water should all be at hand to save the bees from the necessity of taking long flights in uncertain weather. Now is the time to get hives, supers, and other supplies in readiness for the day of need, also to provide seeds of honey plants—of which I last season found the yellow Melilot by far the most profitable. At the time of sowing, attention should be given to making everything about an apiary as tidy and attractive as possible. I could tell of wondrous arrangements in the marine store line that I have witnessed in some apiaries, but at present the hint may be sufficient. It seems as if foul brood were about to become epidemic in some districts. Various correspondents have recently informed me of serious outbreaks in Ireland and some parts of Scotland. It ought to be specially guarded against, and no pains spared to stamp it out on its first appearance.—WILLIAM RAITT, *Blairgowrie*.

### HOW TO USE THE EXPANDING AND CONTRACTING CAPABILITIES OF BAR-FRAMED HIVES TO THE UTMOST PROFIT.

THE discovery of the great value of expansible hives is a marked feature in the progress of scientific bee management. For many years this principle has been gaining in favour with all but the fixists. Nay, even they—some of them—have adopted the principle in regard to supers, enlarging super-space over a hive by a kind of telescopic movement upwards, thus gradually elevating the super. The objection to this particular adaptation of the principle of hive-expansion lies in this, that it tends to the production of unsaleable honey in unwieldy boxes; but if quantity alone is the profit aimed at, and not money value, this adaptation is excellent. We are now, however, dealing with laterally expanding bar-framed hives. Last year one of these in my garden containing sixteen frames, to which the bees were gradually admitted by removal of the dummies, was found to have filled every available space from end to end at the end of June, but the central combs were too full of pollen. The brood cells were found in quantity in the combs at each end of the hive, but comparatively few in the six or seven intervening combs. Not so an adjoining hive, which was exactly similar in all respects, the queens being both hybrid Italians of the same age, and having begun the year with a population little if at all greater the one than the other. Both hives, in fact, were still somewhat weak in numbers at the beginning of May. In the case of the second stock the combs were pretty evenly filled with brood throughout, nor was there much pollen. Incidentally I would notice that this shows we cannot manage our bees on any plan which shall produce a uniform effect. Start two hives side by side as fairly even in all respects as can be done, and in the course of the season the results of their procedure will widely vary. Hence it is I never can believe in any reliable estimate as to the relative value of hives coming out of such trials as are proposed from time to time.

I have, however, instanced the case of these hives because the excessive quantity of pollen in the one was, I feel assured, a main reason why it disappointed me as regards the quantity of honey obtained from it, and set me thinking if there was any remedy to be found. Would it have been possible to baffle the bees, and to make them gather honey instead of storing so much useless pollen—useless at least at that particular time, which was the very height of the splendid honey harvest of last summer? What if I had removed all these combs, putting them by for use later on; and what if I had contracted the brood nest to, say, the nine or ten combs actually filled with brood, while giving them plenty

of super space above the hive, and perhaps also nadir room below? Would they not have taken to the supers in force, being compelled to move up there from sheer lack of space, and given me a splendid lot of beautiful honeycomb, especially if I had kept out the queen? I did take a considerable quantity of honey from this stock in spite of its having swarmed during my absence from home in July, but nothing to what I ought to have got from it. It is hardly likely either that they would have swarmed if they had taken kindly to a number of supers just when the honey glut came on. Moreover, as the young bees issued from the combs below, most of these latter would be filled with beautiful honey hardly less inferior in quality to that stored in the supers, because these combs were all of quite recent construction. Then, at the close of the season, when the final plundering took place, any hives that were deficient in bee bread would have gladly welcomed the pollen-filled combs, some of which might have been returned to the parent hive in place of some of the sealed honeycombs found there. We all know how frequently the supply of pollen is deficient in autumn and early spring in some hives, so that it has even to be supplied artificially.

It will be seen that this idea of treating an expanding bar-framed hive tallies in the main apparently with Mr. Cheshire's suggestion, but only in the particular case of a superabundance of pollen in those combs which are to be "removed." I do not know if he was thinking of pollen-filled combs or what he would recommend to be done with the combs thus removed. The only other combs not filled with brood would be more or less filled with honey. I hardly think these should be removed.

However, I ventured to suggest a quite different treatment of the hive, and to this I now come. This, too, occurred to me in consequence of the state of the pollen-filled stock just referred to. It occurred to me that such a hive might be profitably treated in the following manner:—First remove all combs that may be overfilled with pollen, which (after slinging out all the honey that may be found in the open cells) should be put carefully by for subsequent use as before mentioned. The bees will first have been swept back into the hive after capturing and removing the queen, and she must be sought for and destroyed upon whatever comb she may be found; at the same time let every semblance of a royal cell that may be found in any part of the hive be cut carefully away. Next after removing the pollen-gorged combs take out in the same way those frames which are fullest of sealed broodcomb, to be treated as I shall presently advise.

By means of this comb-removal the brood nest in the hive will probably be narrowed to some seven or eight combs out of, say, sixteen. The dummies can then be introduced and all lateral comb-making will cease, while the bees will be driven to work in such supers as the bee-master may find it good to place over the hive, according to the requirements of the particular stock.

The result of this treatment will first of all be apparent in the arrest and defeat of all immediate swarming intentions. In the next place the bees, not having any call upon their time beyond attending to the brood actually existing in the hive, will, for a fortnight at least, have their attention increasingly, and at last solely, devoted to the ingathering of honey, which, for lack of room below, will all be stored in the supers. At the end of that time of course swarming must be looked for as soon as the artificially reared queens begin to pipe; but an overhaul of the hive and an excision of all royal cells after the issue of the first swarm will restore matters, leaving the whole of the bees for perhaps another fortnight to the undisturbed collection of honey. I presume, of course, that the swarm with its young queen is immediately returned to the hive.

As for the sealed broodcombs which were removed from the hive, they can be utilised with much advantage for the strengthening of some weaker hive, of which there are sure to be some in every apiary. Their removal would, of course, be unnecessary in any other case save where it is desired to force the bees into supers. As the young bees in them would in the course of a fortnight mostly have left their cells, it is plain that the bees would at once proceed to fill these cells with honey as they become untenanted, to the diminution of the stores which would otherwise find their way into the supers.

At the close of the honey season it is obvious that in a stock treated on this plan—the young queen being ready and eager to breed—the bees would require pollen in increased quantities. Here, then, it might be advantageous to return some of the pollen-filled combs before removed; and these might be substituted in place of others that were full of honey.—B. & W.

#### A GERMAN APIARY.

AFTER the close of the Exhibition, which has already been described, my friend and myself (for I was accompanied from London

by Mr. S. Stutterd of Banbury, who is conversant with the German language) started on a little tour into the country districts in order to obtain some insight into the mode of keeping bees in Germany.

Our first call was on Mr. A. Schlösser at Ehrenfeld, near Cologne, who was awarded a silver medal at the Congress for his large collection of honey and splendid colonies of bees (to whose exhibits at the Show reference has already been made). He is a fruit-grower on a large scale as well as an apiarian, and has a commodious house and garden. We were at once conducted to his bee-house, which is in the form of a cross, having four doors. Each one of the four wings projects nearly 11 feet, and is the same in breadth, which adding the space of the interior, gives a diameter from door to door of about 33 feet. One half the space of the interior is required for the necessary manipulations, the other half to the right and left is occupied by the hives. The first shelf is about 2 feet from the floor, the second tier is the same distance above, and the third is 2 feet higher. The hives are "Mehring's" twin-frame hives, and of much the same construction as Dzierzon's, except that the colonies are side by side, not end to end as is the case with the latter. Each shelf accommodates four twin stocks, so that the openings are cut in the boarding for eight entrances; thus there may be twenty-four colonies on each of the eight sides. This pavilion therefore holds when filled 192 hives of bees. At the time I was there many hives were away at the moors, consequently only a few were to be seen. The house is closely boarded and has a tiled roof. There is no admission of light except when the doors are thrown open. The hives open at the back, and are therefore easily manipulated without molestation by robber bees. Escape for any bees that are outside the hives is found through the open door.

There is plenty of space to work the extractor in the centre of the building. On inquiring if there was an apparent difference in the prosperity of the colonies facing the different aspects, Mr. Schlösser said that those exposed to the afternoon and evening sun, which induced the bees to fly out again, are placed in the most unfavourable position; but as long as the entrances are not exposed to the direct rays of the sun it makes no difference whether they face north, south, east, or west, and the only drawback which he finds to his "pavilion" is, that when quite filled the colonies are placed in too close proximity, which causes the loss of many queens in their return from their wedding flight.

This is an objection that might be expected, and favours our English plan of keeping hives on separate stands in the open. The German arrangement has an advantage in being able to keep a large number of stocks compact in a comparatively small space, and is likely to secure them from the risk of being stolen.

We visited some other apiaries in adjacent towns, but there was nothing very special to report, the construction of the hives being much the same as those before mentioned. At Zulpich we called on Mr. Schmidt, a tanner, who is also a bee-keeper; he received us very courteously, and learning that we wished to see apiaries in the locality, he not only showed us his own, but gave up some considerable time in escorting us to others. We learned from him that a bee-keeper in this neighbourhood had taken 1330 lbs. of honey from sixty stocks. This, however, was far excelled by an apiarian in this country, Mr. Alfred Rusbridge of Sidlesham near Chichester, who informed me at the Dairy Show at Islington that he had taken the enormous quantity of 19 cwt. of honey and honeycomb from twenty-five stocks of bees. It may be inferred that the quality was fine from the fact that his exhibits were awarded two first prizes. I may mention as a singular contrast, that in the season previous (1879) this gentleman was unable to take an ounce of honey from his apiary.

The past season seems to have been a favourable one in Germany as it has in this country, and we mostly found that bee-keepers were encouraged by their success. After much interesting conversation we took leave of our friend Mr. Schmidt, and on my companion apologising for occupying so much of his time, he replied that it had afforded him much pleasure to accompany us; for, said he, "I can work every day, but could not have the happiness of receiving visits from English bee friends every day." We left by rail for Aix-la-Chapelle, thence on to Brussels, and spent a day at the Exposition, with which we were much interested, but found no exhibits of bees. The display of machinery and manufactures was large, and considering that the Exhibition was purely national it certainly did great credit to Belgium, and was well worthy of a visit.—ALFRED NEIGHBOUR, *Regent Street, London.*

#### TRADE CATALOGUES RECEIVED.

George White, Carriagehill House, Paisley.—*Catalogue of Florists' Flowers.*

Cranston Nursery and Seed Company (Limited), King's Acre, near Hereford.—*Descriptive List of New Roses for 1881.*

J. Coombs, The Ferns, Enfield, Middlesex.—*List of Cuttings for 1881.*

Messrs. S. Ware, Hale Farm Nurseries, Tottenham.—*Illustrated Catalogue of Choice Hardy Perennials, and List of Hardy Florists' Flowers.*

Casbon & Son, Millfield, Peterborough.—*A List of Zonal and Fancy Pelargoniums.*





\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Books** (*Inquirer*).—Miss Pratt's works are, we think, published by the Society for the Propagation of Christian Knowledge. The "Cottage Gardeners' Dictionary" can be had from this office, price 6s. 6d., or post free 7s. 2d. The "Horticultural Directory" is published annually in the autumn, price 2s. The last edition has been long out of print.

**Culture of Sarracenias** (*Young Gardener*).—You will find the information you require in No. 20 of the third series *Journal of Horticulture*, November 11th, 1880.

**Primulas** (*J. P. B.*).—The dark flower is of good form and substance; the colour is also deep, but brighter and richer flowers are in possession of the principal florists who devote special attention to Primulas. The lilac and white fimbriated flower is attractive, but not novel; the others call for no comment.

**Prolific Cucumber** (*J. J., Lancashire*).—The variety is evidently highly productive. The portion of growth sent, which is less than 6 inches in length, contains three joints and thirteen embryo fruits. Mr. Smeatham also appears to grow Cucumbers well.

**Cinerarias** (*J. H., Sussex*).—Some of the colours are particularly bright and rich, and most of the flowers are of good size, form, and substance. It is a good strain if the plants are of dwarf habit.

**Pelargoniums** (*T. M.*).—It is impossible for us, as we have many times stated, to recommend dealers either in plants or any garden requisites. If you write to those who advertise what you want they will no doubt quote special prices for large quantities, but it will be necessary for you to state your requirements more clearly than in the letter before us. You must state what type of Pelargoniums you require, and what class of plants.

**Heating Garden Structures** (*J. E.*).—By a proper arrangement of pipes and valves all your houses may be heated safely and efficiently by one boiler placed in the position you propose. If you are not practically acquainted with heating garden structures you will do wisely to employ someone who is competent in this work. With the feed cistern of the boiler on the same level with the highest point in the hot-water pipes the circulation will be free, the pipes being properly arranged, and all will be perfectly safe.

**Planting Ranunculus** (*Willesden*).—The present is a good time for planting, and there should be no unnecessary delay. The soil should be in fertile condition, fresh loam being added if needful, which is better than rich manure applied at this season of the year. Drills about 5 inches apart should be drawn for the tubers, which should be planted 3 inches apart in them, pressing them down slightly in sand, and surrounding them with the same material. They should not be covered more than 1½ inch deep with light soil.

**Vines Unhealthy** (*H. L.*).—The few roots sent are quite insufficient for a satisfactory investigation to be made respecting the cause of the unhealthiness of your Vines. We shall require four times the quantity, especially of the ends or fibrous portions, of which you have not sent any. They should also be wrapped in damp moss so as to arrive in a fresh state, those before us being quite dried and shrivelled. We believe there is some injurious substance in the border. As so much time has elapsed since you wrote to us before it will be necessary for you to re-state your case by informing us fully on the age of the Vines, the conditions under which they are grown, and the nature of the soil and state of the border. Owing to the great number of inquiries we receive on various subjects from all parts of the kingdom it is impossible that we can keep in mind the particulars of each case for several weeks after it was brought before us.

**Disbudding Vines** (*J. M. B.*).—Your sketch shows what we meant, but you must particularly avoid overcrowding of the foliage. The distance named is sufficient for Vines in a sound healthy condition; if very vigorous, and with unusually large foliage, the distance between the laterals may be increased. It does not follow that each lateral must carry a bunch of Grapes. We had in mind the shortness of the rods when we replied to your letter, and to thin out the laterals as you propose at once would not result in the thickening of the rods so much as is desirable. Commence as we have suggested, which will encourage root-action, and another year dispose the laterals according to their strength; but a final distance of 2 feet will with such short rods, we think, be ample, but everything depends on the vigour of the Vines and the foliage. If you will send us an average sample of the wood and foliage in the autumn we will readily advise you further on this subject.

**Raising Camellias and Azaleas from Seed** (*F. W., Isle of Wight*).—You will not find it profitable to raise plants from seed. When the seed of Camellias is saved from single varieties you can only expect singles in return; but if saved from good semi-doubles some double flowers may be expected. The time at which the seedlings flower depends entirely on the culture they receive; with your conveniences they would probably be as long as you name or nearly so. Cuttings of free-growing varieties make as good stocks as seedlings, but you will find it much more profitable to purchase small worked plants than to attempt raising stocks and grafting them yourself, as in all probability you would only be wasting time by endeavouring to do the work of a skilled propagator who has proper means at his disposal for carrying out his work success-

fully. We have flowered seedling Azaleas in four years, but had better means of growing the plants than are at your disposal; in fact you do not appear to be in position for carrying out your project.

**Abutilons from Seed** (*Idem*).—Plants raised from seed sown in the spring usually flower the same season if they are grown in pots under glass. You will not be able to preserve the plants if you cannot protect them from frost during the winter.

**Ericas** (*Constant Reader*).—It is impossible for us to give useful replies to correspondents who request us to name good varieties of plants without knowing, at least approximately, the number they require. You give us no idea whether you want a dozen or fifty. If you will state your wants more precisely your letter shall have our attention.

**Primula sinensis fimbriata** (*R. L. Quinn*).—We are unable to decipher the most important word in your letter. If you wish to know how to "save" seed you cannot do better than place the plants on a shelf in a greenhouse where the atmosphere is dry, and water them as carefully as if they were flowering; in due time seedpods will form, and when these turn brown they may be gathered. Plants that flower late—from the present time onwards—usually seed much more freely than those that flower in midwinter, as during the dull period of the year the pollen does not become sufficiently dry for dispersion and fertilisation. If you desire to know how to "sow" the seed, drain the pots well and fill them nearly full of light sifted soil, such as decayed vegetable matter; do not press it firmly; water it, sprinkle the seed on the surface, cover it very slightly, lay a square of glass over the pot, and keep it shaded until germination takes place, then admit light and air gradually to promote the healthy growth of the seedlings. A heated frame is a good position for raising Primulas during the early months of the year.

**Planting Vines** (*E. A.*).—You had better keep the Vines quite cool and allow them to break naturally. When they have fairly commenced growing turn them out of the pots, removing all the soil from the roots, which spread out straight in the form of a fan, covering them 4 or 5 inches deep with fresh loam and a free admixture of burnt refuse or wood ashes, and mulch the surface with short manure. Immediately after planting give a good watering at a temperature of 120° to settle the soil amongst the roots. Do not force them. A night temperature of 50° will be sufficient for three weeks after planting, then raising it to 55°. When the Vines are in full growth the night temperature may range from 60° to 65°. The day temperature without sun may be 5°, and with sun 15° higher than the respective figures, maintaining a moist genial atmosphere. Vines so small ought not to bear any fruit this year.

**Plants for Peat Soil** (*A. C., Bournemouth*).—The following have been found to thrive well on a peaty sandy soil, but it must be understood that many of them are more vigorous and lasting on a good loamy soil. **Bulbs**.—Crocus in variety, Snowdrops, *Gladolus purpureus*, *G. brenchleyensis*, *G. gandavensis* in variety, Narcissuses, *Bulbous Irises*, *Lilium candidum*, *L. tigrinum*, *L. auratum*, Winter Aconites, *Erythronium Dens-canis* (Dog's-tooth Violet), *Scilla sibirica*, *S. bifolia*, *S. nutans*, *Fritillaria meleagris*, *F. imperialis*, *Funkia Sieboldi*, *F. ovata*, *Tritonia aurea*, *Eucomis punctata*, *Muscari botryoides*, and *M. monstrosum*. **Perennials**.—*Orchis mascula*, *O. Morio*, *O. ustulata*, *Statice Gmelini*, *Tritoma Uvaria*, *Anemone Honorine Jobert*, *A. Pulsatilla*, *A. appennina*, *Spiraea filipendula plena*, *Saxifraga granulata*, *S. granulata plena*, *S. crassifolia*, *S. umbrosa*, *S. paniculata*, *S. aizoides*, *Stachys lanata*, *Mimulus cardinalis*, *Dielytra spectabilis*, *D. eximia*, *Corydalis nobilis*, Foxgloves, *Paeonia tenuifolia*, *Oxalis acetosella*, *O. Bowiei*, *O. atropurpurea*, *Iris foetidissima*, *I. foetidissima variegata*, *Arabis alba*, *A. alba variegata*, *Iberis saxatilis*, *I. corraefolia*, *Campanula carpatia*, *C. carpatia alba*, *C. rotundifolia*, *C. pusilla*, *C. pusilla alba*, *Salvia patens*, *S. fulgens*, *Fuchsia globosa*, *Lathyrus latifolius*, *Lychnis Flos-Jovis*, *Veronica prostrata*, *Thalictrum minus*, *Isopyrum thalictroides*, *Aubrietia purpurea*, *Phlox subulata*, *Acanthus spinosus*, *Symphytum officinale*, *Columbines*, *Cerastium tomentosum*, *C. alpinum*, *Polygonatum multiflorum* (Solomon's Seal), *Gentiana acaulis*, *Gnaphalium arenarium*, *Hepatica triloba rubra*, *H. triloba caerulea*, *Omphalodes verna*, *Sedum spectabile*, *S. Sieboldi*, *Stipa pennata*, *Veratrum nigrum*, *Vinea major*, *V. minor*, and *Primroses* double and single in variety. **Biennials**.—*Lunaria biennis* (Honesty), Canterbury Bells, Wallflowers. **Annuals**.—*Collinsia bicolor*, *Omphalodes linifolia*, *Coreopsis Drummondii*, *C. tinctoria*, Sweet Alyssum, *Nasturtium* (Tom Thumb varieties), *Saponaria calabrica*, *Virginian Stock*, *Helichrysus*, *Silene pendula*, *Clarkia pulchella*, *Brachycome iberidifolia* (Swan River Daisy). All the annuals, with the exception of the *Brachycome* and *Tom Thumb Nasturtiums*, would make a better display and flower longer if sown the last week in August to flower the following year. *Weigela rosea*, a dwarf shrub, we have known to flower abundantly in a bed composed of peat soil in which hardy Azaleas and Rhododendrons were planted.

**Herbaceous Plants for August** (*J. Henshaw*).—Plants that bloom towards the end of August are much more limited than those flowering at midsummer, but the following may generally be depended upon to bloom about the period you desire:—*Anemone japonica* var. *Honorine Jobert*, *Pyrethrum uliginosum*, *Aster Amellus*, *A. hyssopifolia*, *Sedum spectabile* (syn. *fabarium*) *Solidago lanceolata*, *S. altissima*: these may be had in bloom at the time named and through September if they have a favourable position and catch the full sunshine. *Coreopsis lanceolata*—this is usually at its best the end of July if left undisturbed in the border; but if taken up in April and transplanted its blooming period will be retarded for ten days or a fortnight. The *Pyrethrums* and *Asters* above named should not be disturbed at their roots in the spring if wanted to bloom at the end of August. Other plants we have usually found to bloom at this time are *Rudbeckia Newmanii*, *Echinops ruthenicus*, *Lathyrus rotundifolius*, *Fuchsia globosa*, *Statice Gmelini*, *Tradescantia virginica*, *Campanula rotundifolia* (Harebell), *Polygonum Brunonii*, *P. Sieboldii*, *Oenothera macrocarpa*, *Lobelia cardinalis*, *Tritoma Uvaria glauca*—the two last-named should have a little cocoa-nut fibre or ashes placed around the crowns at the commencement of winter for protection. *Tritonia aurea*, *Eucomis punctata*—these two are bulbous. *Veratrum nigrum*, *Liatris squarrosa*, *Physalis Alkekengi*—the last-named is berry-bearing, and has a handsome inflated calyx. One of the finest of herbaceous plants is *Delphinium formosum*, usually in bloom at midsummer, but may be had in bloom the end of August by cutting down the leading shoots about the middle of May; other shoots will spring up, and these will be found of great service in August and September. The herbaceous *Phloxes*, too, must not be overlooked, a great number of varieties being now in commerce, as they are amongst the very finest of plants for the herbaceous border to bloom at the time named. These like a deep rich soil, and are greatly benefited by some well-decayed manure being forked in about their roots in the spring, and after a few years when the stools are too large they should be taken up and divided.

**Name of Conifer** (*Young Gardener*).—*Taxodium sempervirens*.

**Names of Plants** (*Arthur Paine*).—*Physalis Alkekengi*. (*Workshop*).—The *Primula* is a very good one, the flowers being not only large, but of excellent shape. No. 4, *Asplenium viviparum*. The other specimens were not only

insufficient, but were quite withered. (*J. E.*)—1, *Asplenium caudatum*; 2, *Camp-tosorus rhizophyllus*. The Orchid is *Ansellia africana*, the Fern is *Davallia dissecta elegans*, and the other specimen is a leaf of *Dasyllirion acrotrichum*.

**Moulded Combs—Dead Bees** (*Comber*).—We have submitted your query to Mr. Cheshire, who replies thus:—The fact of the pollen being mildewed is not serious. As the bees strengthen and the weather grows warmer they will remove the refuse pollen and clean the combs perfectly. No doubt you left your hive too large. Bees must be confined by a division board or dummy to a number of combs proportionate to their strength, only so many being given them as they are able fairly to cover. The division boards should be either good non-conductors of heat themselves, or they should be protected by having all the space between them and the hive side filled with chaff. This matter we shall be very soon illustrating by woodcuts. The fact of dead bees being found in numbers on the side frame shows an error or omission. It is usual to cut holes through the combs, called winter passages, and by means of these the bees are able to condense as temperature falls, the passages giving an opportunity to those bees of the side seams to pour through the openings as the others retire from them in the act of condensing. These winter passages we have come to regard as an old-fashioned expedient which we now, for a double reason, never use—an advantage, as this hole-boring is a destruction and loss of many cells. First, we use flour cake, and this turned down upon the frames is quickly bored away by the bees as they consume it, leaving passages in the very snug part of the hive, as we now winter them with quilt and chaff box above; and, again, we use hives so thoroughly non-conductive that the bees prefer to cluster, not in the centre of the frames away from the walls, icy cold as they are in too many hives, but against them, and they are always free to pass round the frame end from comb to comb. In this way the bees are warmer than they can ever be made by the inconvenient and retrograde closed frame ends for the introduction of which an effort is now being made.

#### COVENT GARDEN MARKET.—MARCH 9.

TRADE keeps very quiet, supplies being limited, and business the reverse of brisk.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons.....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches.....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert.....	dozen	4 0 8 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples....	½ lb.	1 0 2 0
Gooseberries..	½ sieve	0 0 0 0	Plums.....	½ sieve	0 0 0 0
Grapes.....	½ lb.	3 0 12 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto.....	½ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 6	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	3 0 3 8
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### MANURING AND IMPROVING OF PASTURE AND PARKLANDS.

(Continued from page 181.)

IN the management of grass land we cannot overlook the great variety of soils and climates in which they are found. For instance, we have the poor hill pastures on the chalk, limestone, sand, and gravel formations; on the other hand there are the alluvial soils of Somerset, with the strong loams or clays of Leicestershire and some other counties. In the letting value of these pastures and their intermediates there is a great difference, probably varying from 5s. per acre to as many pounds sterling; it is therefore evident that the manuring and management must vary greatly. Where there is good natural pasture little manure will be required, but it must be remembered that good management is the only way the best of pasture can be made to yield its full benefit and profit to the occupier. On the other hand, the hill

pastures will require judicious outlay for manures and improved modes of feeding by stock. Under any circumstances where the land is thin and poor, manuring and maintaining a full plant of grasses should be attended to; and it is also especially advisable that all manuring should be accompanied by mixtures of earthy substances as composts, excepting on the steep hillsides, where carting of heavy materials would be expensive and often impossible.

The advantage of maintaining a full plant of herbage, even in the best pastures, is frequently made a matter of only secondary importance. The destruction of the finest and best herbage is often caused by the injurious feeding by sheep stock during the winter months, and we speak of this in reference to the best bullock pastures especially; we will therefore quote from Mr. Lawes' paper, illustrating the value of the Clovers in the best pastures of Leicestershire. He states, "In my last letter I mentioned that through the kindness of Mr. Pell, M.P., I had been given the opportunity of investigating the properties of the herbage and soil of a rich Leicestershire pasture, and added that I proposed in a future communication to make some further remarks in illustration of the subject of grass land in general as derived from my examination into the properties of this specially rich pasture. There is a common saying in Leicestershire, 'The more white Clover the more beef,' and it is evident that in the pasture which I have had under examination white Clover occupies a very prominent position. It is probable that an increase of live weight equal to 500 lbs. is produced upon each acre of this land in the six months' grazing; but it is hardly possible to form any accurate measure of the amount of grass which is consumed in the production of this result. It is also evident that to fence off a small portion of the field, and then cutting the produce two or three times in the year, would give a false estimate of the quantity grown, as well as the quality of the grass which enters the animal's stomach day by day. To meet this difficulty the plan was adopted of plucking the produce by hand at intervals of a few days, and by this means we obtained a sample which fairly represented the character of the food. In our various experiments upon fattening oxen we estimated that about 12 to 13 lbs. of dry food was consumed to produce 1 lb. of increase. In the experiments carried on many years ago at Woburn the following quantities of food were consumed to produce 500 lbs. increase in a fattening ox:—1½ ton of Clover hay, 16 cwt. of corn or cake, and 5 tons of Swedes. The sum of these would be about equal in weight to 3½ tons of hay. Now, without going into the question of how far the grass on an acre of the Leicestershire pasture would be equivalent to the food I have named, its consumption at all events brings about the same result so far as the production of 500 lbs. increase of live weight in a fattening animal is concerned, and we get in the comparison some idea of the wonderful qualities of such a pasture as that which I have under examination. If it be an accepted fact that the production of a large accumulation of food of which the two most important elements are nitrogen and potash, and further that a very essential plant in a good pasture is white Clover, the question of producing a good pasture is in a great measure reduced to the means of providing the nitrogen and potash at the lowest cost, and to the treatment of the land in such a way as to encourage the growth of white Clover."

Taking this quotation as a whole it is extremely significant, and highly suggestive in relation to various points in the establishment of a new pasture, as well as the treatment of old grass land. One point seems to stand out in bold relief—that of the value of perennial white Clover, if not the actual necessity of it. The only question arising in our mind is the desirability of considering the kind of soil, for when we know the manures required to produce it in perfection to be nitrogen and potash we can



understand the reason why white Clover succeeds so well upon strong and clay loam soils, and how difficult it is to maintain a plant of it upon light and poor soils; it is therefore clear that in nearly all strong soils potash is a constituent, requiring in consequence but little or none to be added in the manure. In the light poor soils, however, the potash being almost or entirely absent in the composition of the subsoil, it becomes necessary to apply manure composed largely of potash. Mr. Lawes has shown that the white Clover is found to prevail in all the best and most fertile bullock pastures, and this the home farmer should bear in mind. Upon any soil we should endeavour to obtain and maintain this white Clover if we wish to have a good turf and valuable pasturage, and this will be best secured by constant and judicious feeding with cattle, and giving liberal quantities of decorticated cotton cake to the animals whilst grazing. The practical treatment, however, of the droppings of the stock must have direct and constant attention, by either knocking and spreading the dung or collecting it, and mix with earth as a compost for future use; for the manurial value of dung voided by cattle eating decorticated cotton cake is proved to be so strong as to act injuriously on certain spots, unless it is spread or collected until a year or more has elapsed.

Obtaining a plant of white Clover where it is deficient, either in old or recently laid down grass land, is not only a difficulty sometimes, but practically the seed should be sown with permanent grasses if necessary. If, however, the Clover only is deficient, the renovating may be obtained in most soils by frequent manuring. In general it will be necessary to sow about 10 lbs. of seed per acre, and the best time to sow it is during the latter half of July or early in August. Before the seed is sown the land should be thoroughly dragged, so as to produce a loosened surface, and be finished with a heavy roller. Our reason for referring to this matter minutely is because when the seed vegetates it requires protection in its first and second leaves against the depredations of slugs, and we find this is best obtained by the young grass blades which shoot up from the old stocks, and which protect it, and until the following spring the grass should never be fed off by cattle or sheep; it will then be found that the autumn growth of the old grass will act as a protection during the winter months, not only against insect depredations, but also the damage which might accrue from the effects of frost and adverse winter weather. In renovating light poor soils, instead of employing perennial white Clover seed only, we prefer to mix about half the quantity of seed required with *Trifolium minus* or yellow Suckling Clover; this is also a perennial Clover, and will be quickly established on light soils if the same means are used as recommended both in seeding, manuring, &c., as for white Clover, except that instead of depending upon the soil to supply potash it will be necessary to supply with a liberal hand not only potash and nitrogen in the manures, but bone phosphates also.

The after-management of the turf upon light land requires some remark here in contradistinction from the best soils fed by cattle only or chiefly, for in our light soil pastures we are bound almost entirely to feed with sheep. The point of management which then arises is to do this and maintain the plant of grasses of superior sorts whilst making use of the produce for grazing, for although we may feed with sheep eating the best cotton or linseed cake, yet the plant may be destroyed by injudicious feeding. For instance, the sheep should not be allowed to crop the turf too bare, especially in the winter months; and the best way to prevent injury is to avoid promiscuous feeding, and fold off the produce occasionally as the food becomes sufficient, not allowing the sheep to lie back more than one fold. It is evident that there are at least two ways by which either old or new pastures may be seriously injured, the latter especially—namely, the plants of the best grass being starved out for want of manure, or eaten by hungry sheep. In our next and concluding article we may have to quote again from Mr. Lawes' paper upon some important points connected with our subject.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—Some of the lost time must now be recovered by making all possible speed in working the animal power of the farm, whether horses or oxen. The latter, upon many farms where steam power is not available and the land has become foul, may now be worked with advantage for the remainder of the season, and until after the Wheat seedtime is completed. They may then be put into boxes for winter fattening, for which purpose they will be in forward condition if they have been liberally fed during the working period. They should be fed at the same cost per head per week as the horses; they will then not only be strong in their work but will gain flesh at the same time. We do not, however, recommend ox labour in lieu of steam power, but advise the home farmer to anticipate all the labour

on the land likely to be required; and, in order that the work may be kept well forward, to employ steam for the heaviest work on the fallows for roots during the time that the horses are employed upon the Lent corn seeding. Upon the mixed soils where roots have been fed off by sheep we much prefer to sow the white Canadian Oats, or other early white Oat, instead of Barley, as the latter often proves only a thin grinding sample, whereas the Oats are sure to prove good if sown in good time. It is a matter, too, of considerable consequence whether the land is to be seeded with Clover; for if not, we have often grown capital stubble Turnips after the early Oats, as they are usually fit to cut ten or twelve days before the earliest Wheat. When the Oats are tied and set up in stook our plan is to plough and drill the Turnips between the stooks every evening. A capital crop will generally repay for such a practice.

We have lately referred to the stable management of farm horses, and we consider their health and well-doing is of so much importance that we return to the subject. It is quite usual for farm horses to stand in the stable tethered three or four in a row; but we dislike the plan, for they cannot feed so comfortably as they should do, and are far more liable to accidents. Instead of the old-fashioned rack overhead with manger below—in which the animals are accustomed to feed, the stronger animal getting the chief share of the food—we place the horses in pairs in stalls divided with boarded partitions 10 feet 6 inches in width. The horses being tethered at either corner are not liable to accidents by crossing ties, nor can they interfere with each other at feeding time, as the boxes in which they are fed (being 2 feet by 2 feet) are placed at each corner of the stalls, with the rack or deep manger for hay or straw on the same level and between the two feeding boxes, wherein they can eat in common. Horses placed in pairs in this way should stand in the stable as they work in the field, those which are found to agree best together being paired. It will then be found that the numerous accidents and losses which occur to farm horses may often be traced to promiscuous intercourse in the stables or yards, which it is the especial object of this system of management to avoid.

*Hand Labour.*—All root heaps or stores should be carefully looked over, and any frosted or decaying roots picked out and used before becoming entirely worthless, after which the heaps may be made up again and rethatched or stored for use during the spring or summer. Many of the Swedish Turnips being injured by the frost will not only prove a serious matter for maintaining the condition of both ewes and lambs, whether as stock or feeding for the butcher, and will require to be largely supplemented by purchased food. We find that the early horned ewes and their lambs have made good proof considering the adverse effect of heavy snow and frost. Many of these lambs have been sold in the London markets, and are fetching a satisfactory price. The early-lambing Dorset downs and their lambs are making satisfactory progress, and a large portion of the latter will be fit for sale at Easter. The Hampshire ewes and lambs of the stock flocks have done fairly well, the number of lambs saved being rather over the average. We find that the lambs are now dying in considerable numbers with the white scour, no doubt the effect of the ewes eating Swedes which are in a partially decayed state, which have a tendency to cause the milk to be unwholesome for the young lambs. It is whilst they are young and before they can eat that lambs suffer from this peculiar kind of diarrhoea. Our remedy, which for many years has proved successful, is ten or twelve drops of tincture of opium, commonly called laudanum, in a wineglassful of water given every three or four hours until the diarrhoea is stopped. The dose for lambs three weeks or a month old is a teaspoonful of laudanum in the same quantity of water, and repeated in the same way until either success or death occurs. The water meadows are rather backward this year, but in consequence of the decayed Swedes, where a deficient provision of Mangolds occurs, the feed of the meadows will be invaluable upon the hill stock farms. We hear much complaint of the ewes suffering from what is termed the foot-and-mouth disease, and also the wether and teg flocks. This has been in cases certified by veterinary professors as foot-and-mouth disease, and treated as the same. We have much evidence to offer, the result of our own experience, as well as that of other practical farmers, that there is this difference in the epidemic fever from which the sheep suffer—that we have never known the sheep take it from the cows, nor *vice versa*; in fact, in certain districts we have never been without it in the sheep, accompanied by lameness, during the several years which the cattle of the kingdom have until recently been perfectly free.

#### VARIETIES.

*MANURE FOR POTATOES.*—"As a rule, I find," says Dr. Voelcker, "that potash salts by themselves do not produce a very marked effect. They produce a greater effect when used in conjunction with phosphate of lime and ammonia. I have found good results from 4 cwt. of mineral superphosphate, which will cost about 15s., and 3 cwt. of potash salts—that is, kainit. That would cost 8s. Then 2 cwt. of sulphate of ammonia, taking it at an average price of 18s., would be 36s.; so that it would cost nearly £3. In many instances when I have applied this mixture I have more than doubled the crop—raised the produce from 6 tons to 12 tons. I need not say that that paid



remarkably well. I should mix the manure and apply it as early in spring as possible, as soon as I had got the ground ready—even before winter. Potash is not liable to be washed out of the land, neither is the phosphate of lime. The only risk you run is that in very wet weather some of the ammonia may be washed out. Artificial manure is not a preventive against disease. I recommend it in order to ensure as large a yield as possible, and a manure which supplies all the constituents in the proper proportion. Farmyard manure might be applied or let alone."

— FARMING IN THE NORTH OF ENGLAND.—A correspondent writes to *Newcastle Journal* as follows:—The storm which we have experienced in this district since the 10th January is now telling with most serious effect upon all hill stock. Hand-feeding of stock with hay has been day by day resorted to, till at last the supply of provender is all but exhausted, and relief cannot easily be had. Never has there been greater anxiety in the minds of flockmasters than there is now. Sheep-rot is prevalent all over the low-lying pastures. Serious losses have already befallen the farmers through deaths, and in scores of instances whole flocks have been sent to the butcher to save them from a total loss. March has come in, true to the tradition, like a lion. The outlook is more doleful than we like to report. Turnips are much injured. Upon arable farms work is very far in arrears. No spring Wheat has been sown, nor will there be any now. Clover leas are yet unploughed to a very great extent, and all the land for the Barley crop lies awaiting the plough. When we will get seed time it is difficult to say; the time of the year is now at hand, but the season to sow is lost, especially for Wheat, and what is intended for Beans, like the land for oats and Barley, is yet all to make ready. With two months of arrears of ploughing lying before him, the corn farmer's prospect is not one bit better than the grazier. The position of either is certainly not an enviable one.

— A SIMPLE TEST OF OLEOMARGARINE.—As there is much more of this product sold in England than the public are aware of we publish this test, which we believe to be a good one, from the *American Farmers' Magazine*. Persons familiar with the process of manufacture of oleomargarine are aware that it is subjected to heavy pressure to express all extraneous matter, so consequently, when ready for sale, it presents a perfectly compact homogeneous mass. In order to detect the fictitious take a smooth-bladed knife and cut oleomargarine. It presents where cut a perfectly smooth surface, while genuine butter when cut with a knife does not present such an appearance, for you will find water oozing out and numerous small holes will appear. With this simple guide no one need be deceived as to the article they purchase.

— AYLESBURY DUCKS.—The Aylesbury trade is not conducted in large establishments, but is carried on exclusively by cottagers who, it has been computed, manage to divide between them something like £30,000 a year. All round Aylesbury the cottagers are wont to keep a small number of birds. The eggs produced are sold by the cottagers to the "duckers," who sometimes contract to take their whole season's supply at a fixed price. These "duckers" are for the most part labourers who are sufficiently independent in their circumstances to be able to devote such time as they may have occasion for to this particular business. They are in by no means a large way, six drakes and twenty Ducks constituting on an average the stock with which they commence the season's operations. They begin to collect eggs in October, and give perhaps 3s. 6d. a dozen for all that are laid, though occasionally, Mr. Fowler says, he has known 12s. a dozen offered. They hatch, not under Ducks, but under hens, usually Dorkings or Cochins. These are set in casks, or small hampers, or cheese boxes, and when the young birds are a few days old three or four broods are put together with one hen. Those intended for market, it is curious to observe, are never allowed to go into the water, but are kept very clean and dry on barley straw, and are fed on hard-boiled eggs, rice, and bullock's liver for a fortnight or so, after which they are treated to barleymeal and tallow greaves. They are kept under cover—whenever convenience can be secured for them—in hovels or in cottages, sometimes as many as 2000 or 3000 birds, partitioned off by boards into thirties or forties, preparing for

market under one management. It is, as we have explained, the "duckers" who accumulate stock in this way, and about this time of year they begin dispatching their birds to the London market; and it is said that, as the spring advances, it is not an uncommon thing for a ton weight of ducklings to be dispatched from that neighbourhood in a single night. Now a ton of young Ducks from six to eight weeks old will comprise perhaps 450 birds, or 225 couple, worth, in the best part of the spring, from 15s. to 20s. a couple. This represents, it may be, £150 or £160 a night, all or most of which goes, not into the hands of any large dealer, but, as it has been shown, is distributed among a very considerable number of people, who in no respect but their thrifty care and enterprise are better off than tens of thousands of Irish peasantry, to whom just such an industry might bring comfort and independence.—(*The Globe*.)

## POULTRY AND PIGEONS

### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 183.)

#### BREEDING THE SEXES SEPARATELY.

THERE is nothing which causes so much want of success amongst young fanciers as ignorance of the fact, that in many varieties of poultry it is necessary to mate-up distinct yards for breeding cockerels and pullets. We cannot but regret that this course should be necessary. It is in our opinion the result of an erroneous method of judging having been adopted in regard to one sex or the other. Either through a want of practical knowledge of the breeding of the varieties upon which they had to adjudicate, or through caprice, the judges adopted standards for the two sexes which were inconsistent with each other. That is to say, a pair of birds to which prizes were awarded as being of the same variety, were really so distinct that if mated together they would have produced chickens unfit for mating with either parent. The birds shown as a cock and hen of some particular variety were really of distinct varieties, and except in the show pen had nothing in common. Fanciers were more in the hands of the judges than they are now, and instead of resisting this false method of judging, they fell in with the views of the judges and set up separate breeding yards for each sex.

The standard having been thus wrongly fixed, has in regard to some breeds become so universally recognised that it would be quite useless to make any attempt to alter it now. In regard to these the breeder must therefore be prepared to submit to the inevitable, and in addition to his exhibition stock must purchase other birds which are worthless for exhibition, but which are suitable for mating with the exhibition stock of each sex. Two separate strains must, in fact, be formed. This, of course, necessitates the maintenance of a double number of breeding yards and the rearing of a larger number of chickens each year. It also necessitates the possession of a knowledge which is not always easily accessible—namely, the knowledge of the points which are the complement in one sex of the exhibition points in the other. All these considerations render it advisable that a beginner should, before taking up any variety, ascertain that it is not a variety which requires the two sexes to be separately bred, or if this be the case should master the method of breeding each sex.

We may say that there is hardly any variety as to which we have not heard of successful attempts being made to breed exhibition stock of both sexes from the same yards. Permanent success, however, can hardly be obtained in some sorts without breeding the sexes separately, and as to these it is mere waste of time and trouble to make the attempt.

There are, however, some varieties which have only for a comparatively short time been judged by an erroneous standard, and in which a struggle has been going on between the breeders and the judges. In Dark Brahmas, for example, the tendency of the judges was for several years in favour of excluding mottled-breasted birds from the prize list. It was found that the production of well-pencilled pullets and black-breasted cockerels from the same parents was almost impossible. The clearer the pencilling of a hen the more likely were the cockerels bred from her to be more or less mottled on the breast. The leading exhibitors persisted in exhibiting mottled birds. The Crystal Palace Show established a separate class for them. The matter was taken up in the poultry press, and in one way and another it has

now become recognised that a mottled breast is perfectly allowable in a Dark Brahma cockerel. In fact, at the last Crystal Palace Show the separate class for these birds was deemed no longer necessary, and nearly all the prizes were awarded to cockerels more or less mottled.

Many exhibitors of Brahmas had, in consequence of the tendency shown by the judges to exclude mottled-breasted birds, established separate strains for cockerel and pullet breeding, and some of these will doubtless be kept up, but it is no longer necessary to breed the sexes separately. In the case of varieties both sexes of which can be successfully bred from the same parents, it is clearly to the advantage of the breeder to adopt this method. It increases the intrinsic value of the birds individually and as a strain; it tends to preserve uniformity of type, and it does much to prevent those disappointments which so frequently dishearten young fanciers. We do not mean to advise that a yard should never be mated up specially for the production of one sex, but we do mean that this should not be carried to the extent of forming a separate strain.

We think that exhibitors should make every effort in their power to prevent the establishment of such a standard in any variety (the standard of which is not yet clearly settled), that it may be necessary to establish separate strains for each sex; and we also think that the judges should yield in all such points to the known wishes of the leading breeders of each variety.

There is a feeling abroad that it is the business of the judges to fix the points of each breed, and that exhibitors should humbly yield to their fiat, and do their best to produce the article required. With this view we cannot agree. Those who have had practical experience in the breeding of a variety are best qualified to settle the points of that variety. They and they alone can tell which points are most difficult to attain, and can estimate each point at its true value. In these days of all-round judging it is impossible that a judge can have bred all the varieties he has to adjudicate upon; how, then, can he be qualified to frame a standard of points? It is true that in one sense the judges do frame the standard, and we have heard it urged as an objection to the proposal that a formal standard of each breed should be drawn up, that the judges would refuse to follow it. Of course the value of any standard would depend upon its correctness, and it could only be deemed correct or incorrect so far as it represented or failed to represent the ideas of the leading exhibitors. If a standard were correct in this sense the judge who refused to follow it would clearly be in the wrong, and might easily be made aware of the fact. The system which has found favour of late years of having certain classes judged at the principal shows by actual breeders of high standing has done much to bring about unanimity between fanciers and judges. The drawing-up of an authoritative standard of each variety by the leading fanciers of that variety with the aid, if obtainable, of such of the judges as were or had been breeders of it, would, we think, be a further step in the right direction.

Although much is in the power of the judges, we think exhibitors are fairly entitled to have their views respected, and by abstaining from exhibiting under a judge who persistently ignores these views they can do much to prevent the formation of an erroneous standard. They can also, by giving public expression to their individual ideas and ascertaining how far these are in accord with the ideas of their brother fanciers, aid the formation of correct notions by such of the judges as have not had practical experience of the variety.

We cannot pretend to state positively as to which breeds or varieties it is absolutely necessary to breed the sexes separately. We shall be very pleased to hear from our readers as to their experiences in this respect.

(To be continued.)

### PROFITABLE POULTRY IN AMERICA.

LAST year I made a clear profit of almost 1000 dols. on a breeding stock of some two hundred chickens, Ducks, and Turkeys. I do not publish this to boast over my success, but to show others what a woman can do under the most favourable circumstances. These in my case were a splendid stock of breeding fowls, a healthy location, a thorough knowledge of my business in all its branches, and nearness to a first-class market.

Of course some doubting individuals stand ready to declare that it is impossible to make five dollars profit on every adult fowl kept; but if they will stop and consider that I get spring chickens into market during the months of April and May, when they sell readily for one dollar each; that I sell ten and twelve pound capons for thirty cents a pound; that I manage to have

eggs to sell in winter when I can get from thirty to thirty-five cents a dozen; and that I sell a few trios of exhibition birds every year, they will see where the big profit comes in.

Now don't stop right here and give up all thoughts of raising chickens just because you cannot get such prices in your locality, but wait until I give you a few hints from my experience.

I have kept poultry in the west where eggs sold at the "stores" for eight cents a dozen in summer, and poultry sold in the fall for seven cents a pound, live weight, but I made it pay. We lived on a line of railroad two hundred miles from a city market, but I soon found out that all the poultry and eggs from our place went to the city, and I could not for the life of me see why I could not ship such things just as well as the merchant, so I sent a thirty-dozen package of fresh eggs to a commission house in the city; they sold readily and there was call for more. "These small packages of eggs, every one warranted fresh, are just what we want," wrote the commission man. I did some more thinking, and then put on my good clothes and went to the city. Once there, it did not take me long to find a grocer who wanted thirty dozen of fresh eggs every week, so I shipped the eggs direct to him, and saved the commission man's profits. In the fall I sold my poultry the same way.

There was no thoroughbred poultry in the vicinity except that in my yards, and when people began to find out that my chickens were superior to the common mongrel fowls they bought a great many eggs for hatching. There was not one pair of any of the improved varieties of Ducks in the county. I sent a thousand miles for a pair of Pekins, and within a month after they arrived everybody had the Duck fever, and I was overrun with orders for Ducks before a single egg hatched. I also procured some Bronze Turkeys, and sold every egg that I could spare and every Turkey that I raised at good prices.

Every woman who goes into poultry-raising may not be able to get in these "extras," but every woman who desires to earn money by raising poultry and goes into the business with a determination to succeed will be sure to make it pay, even if she sells every egg and every chicken at market prices.—FANNY FIELD (in *Prairie Farmer*).

### TURKEYS AS HATCHERS.

WE translate the following interesting account of the method adopted in France of inducing Turkeys to hatch from M. Voittellier's work on incubation:—

In some places they have endeavoured to replace the natural incubation of hens by forced incubation of Turkey hens; but this mode of hatching has not become general because it has not given, as a rule, more than moderate results.

In order to make the Turkey hens hatch at times when Nature does not call upon them to do so, and when they have not laid (many of those which are subjected to this system after several years become sterile), the most simple means are employed. About the 15th of November a Turkey hen, which has up to that time been allowed the run of the poultry yard, and which has received no previous preparation for the rôle which she is intended to fill, is selected. She is then placed in a box or basket covered by a lid; a nest of straw is formed in the box or basket of such a height that the lid when closed on the back of the bird prevents her from standing upright; the lid is firmly fastened or loaded with large stones.

Every morning the birds are allowed a quarter of an hour's liberty for feeding, after which they are replaced in their narrow prisons. When several days have expired they begin to accustom themselves to their new rôle, and most of the birds set in the same place return by the force of habit to their respective nests after feeding without making any mistake. Some old eggshells filled with plaster are then placed under them by way of trial. They take little by little to the ways of hatching, and end by deciding to sit steadily. The lid of the box or basket is then left open; they receive twenty eggs and sometimes more according to their size and aptitude for sitting. All these preparations require from eight to eleven days. Some birds, however, obstinately refuse this forced maternity; these should be immediately sent to the fattening pen as being unsuitable to be bred from.

It is worthy of remark that the progeny of a Turkey hen, which is a good sitter and good mother, always resemble their parent in this respect. In some places Turkeys absolutely refuse, it is said, to be forced to hatch, but these cannot have been bred sufficiently with a view to the end which they are desired to attain.

Many henwives have a superstition that the time of hatching should be so arranged that the birds should hatch out in the last quarter of the moon. Our own observations on these points,

applied as well to natural as to artificial incubation, do not altogether negative this traditional idea. We avow at the same time that, without absolutely arriving at any rule upon the subject, the results obtained under these conditions have presented a certain advantage.

The Turkey hens which have ended by hatching can hatch out without any interval four or five clutches. They have been sometimes known to hatch as many as eight. As each batch is hatched out one mother takes charge of all the chickens, and the others continue to act as hatching machines.

In spite of its simplicity this system of winter incubation presents much inconvenience and gives much cause for anxiety. The eggs are broken by such of the hens as are too heavy or awkward, and the chickens are frequently crushed just before hatching out. The nests are fouled, and an evil which is without any certain remedy—the hatchers are covered with insects, with which they affect their chickens. The persons who carry on this mode of hatching reckon that from about four hundred eggs they will obtain a hundred chickens. Even admitting that the clear eggs can be removed (which is very difficult in consequence of the birds fouling their nests to such an extent that it is impossible to see through the eggs) and that the eggs are not broken, ten Turkeys at least must be employed to obtain this meagre result. Then how many anxieties are entailed by this abnormal method of hatching! It is necessary to take off the Turkey hens and clean the nests each morning, a work which cannot but be repugnant to the henwife; then what a quantity of food has to be given to the birds! All this is a mere nothing, however, compared to what may happen if an epidemic should reach the yard; then fifty or a hundred hatchers die in a few days, and there is nothing but ruin for a poultry yard in which the hatching is so managed.

#### TOY PIGEONS—AFRICAN OWLS.

THERE is no race of Pigeons which more truly merits the appellation of "Toy" than these little beauties of the sunny South. In our descriptions of nearly all the varieties of Toy Pigeons we have begun with due deference to the fanciers of the past by quoting descriptions of each breed from the older Pigeon books. In the present case we cannot do so, for the good reason that these diminutive Owls were unknown to English fanciers half a century ago. We owe their importation to the rapidity of transport in these days, as we owe the multitude of Parrots and other foreign birds imported by Mr. Cross and others, and which can now be purchased for a tithe of the price which our grandfathers gave for such exotics. The general characteristics of the African Owl are the same as those of the old English breed of Owls, save that its size is only about half that of the latter.

We believe that the first specimens of the variety ever seen in England were imported by Mr. Vernon Harcourt of Newnham some twenty years ago; they were white and very small. About eight years ago we saw a number of their descendants which had sadly degenerated in head properties and increased in size, from the stock being allowed to breed in a haphazard fashion. Their home is the northern shores of Africa, Algiers, and Tunis. We have also seen some imported from the Levant. In form they should be short in body with head well thrown back, very short in face and beak, very down-faced, and very round in head, their breast full round and full. Their colours when exhibited should be pure white, blue, or black. Some of the prettiest and most costly when perfectly marked are white with tail of some colour, as black or blue. In Africa they are bred more for form than feather. Their breeders, we believe, refuse to pick out those of any special marking, and consequently the great importers are obliged to take large and miscellaneous flights. We have seen beautiful collections freshly arrived at Mr. Baily's establishment in Mount Street, but the larger proportion of them, though capital in head properties, were not in feather such as to suit fanciers of feather; hence the high prices of the very few selected from them as match pairs. A young fancier who has a good chance can hardly do better than pick up at moderate prices some of the mismarked birds. We once purchased a tiny blue cock, exquisite in form, but with white cheeks and some white in flights; his produce were very good, probably as good as from a perfect bird at five guineas. To those, too, not entirely devoted to the exhibition mania there is a charm in looking for variety in the produce of our birds.

African Owls are said to be delicate, and we believe that there are well-known instances of large and expensive flights being carried off by exposure to east winds. We can only say that the above-mentioned little cock reached us in the month of November, and insisted upon roosting and nesting through the winter in an open cart shed, apparently to the great advantage of his health. Among

collections of African Owls peak-headed birds are occasionally seen, and these when white are sold as White Turbits. Of course foreign Owls from the fineness of their heads have been much used to improve English Owls. We do not approve of crossing the two kinds, and look with suspicion on very small specimens shown as of the English type, believing them to have an admixture of foreign blood. African Owls are bright and lively little things, and in a good situation may have complete liberty.—C.

VERMIN ON FOWLS.—It seems strange to me to see in the "Country Gentleman," every now and then, inquiries as to what will kill lice on fowls. Let me give you my experience with fowls; then you will see why these inquiries seem strange to me. Just about five years ago I purchased some show Bantams. When the spring of the year came I soon had chickens; it was not long before one or more began to be dumpish, would continually gape, and finally die. I could not account for it for some time, but one day, just after a pretty Silver chick died, I held it in my hand, and on thoughtlessly rubbing up the feathers a little I saw something on its head, and quickly discovered it to be a patch of lice boring into its head, which seemed to me quite enough to cause its death. Then I found some under its neck. I had seen in the "Country Gentleman" a statement that kerosene mixed with lard enough to prevent its running would kill lice on fowls. I tried it, and it thoroughly killed them. I now go over every brood of chicks when they are ten or twelve days old, and rub the kerosene and lard on their head and under their wings, and wherever else I find lice. They look very rough for some hours afterwards, but it is not long before they look all right again. From the time I began to do this I have had no chickens gaping and dying. I lose chickens from time to time, and fowls, but not on account of lice.—J. J. (in *Albany Country Gentleman*).

#### OUR LETTER BOX.

**Egg Tester (N. S. R.).**—You will find full particulars in "Our Letter Box" on page 144, No. 34.

**Spice for Chickens (Idem).**—There are many sorts in the market. We never recommend any particular manufacturer. We do not use any. As a stimulant we advise bread and ale given once or twice a day. If the food given be varied and chosen with due regard to its heat-giving and flesh-forming properties, stimulants should only be necessary in exceptional cases.

**Curing Egg-eating Hens (C. W.).**—Hens generally eat their eggs from want of lime or the material necessary for forming the shell. They eat it first for the sake of the shell, in order to form that which is in course of being produced. Nothing is so good as to throw some baskets of bricklayers' rubbish about in their haunts. It is from want of this that hens in their laying season eat the mortar from between the bricks. When they eat the shell they learn to like the yolk, and then take to the egg. There is no real cure, but if they are watched when they lay, and driven from the nest after the operation is complete, they sometimes give up the habit. Another less troublesome plan is to obtain some very hard artificial nest eggs and put them in the nests, and to lay them about their haunts. They peck at them, and finding it fruitless give up the habit.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1881. Feb. March.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 27	29.857	34.0	33.5	N.E.	36.0	39.1	30.2	79.1	25.9	0.013	
Mon. 28	29.736	31.4	30.7	N.	35.7	34.7	26.9	67.1	24.6	—	
Tues. 1	30.058	28.7	28.7	N.W.	35.3	40.5	23.7	84.4	21.3	—	
Wed. 2	30.257	34.0	31.8	W.	34.9	43.4	27.8	79.4	25.7	—	
Thurs. 3	30.143	36.7	33.7	S.E.	34.7	39.0	33.1	48.0	29.3	0.314	
Friday 4	29.544	37.6	37.5	E.	35.4	43.4	34.4	46.3	33.6	0.592	
Satur. 5	29.368	47.6	47.5	S.	35.3	57.5	37.3	77.2	37.2	0.569	
Means.	30.852	35.7	34.8		35.6	42.5	30.5	68.8	27.9	1.488	

#### REMARKS.

- 27th.—Slight snow showers in morning; bright sunshine in middle of day; starlight evening.  
 28th.—Calm, cold; fine with some sunshine.  
 1st.—Fine, cold; bright sunshine all day.  
 2nd.—Fine, bright sunshine in morning; afternoon and evening hazy.  
 3rd.—Cloudy and dull; high wind latter part of the day.  
 4th.—Damp and misty, with rain greater part of the day.  
 5th.—Mild rain in early morning; fair with some sunshine during the day; heavy rain in evening.

Temperature on the whole rather above the previous week, but still below the average. Rainfall much above it, the fall on the last two days being very heavy.  
 —G. J. SYMONS.





17th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
18th	F	
19th	S	
20th	SUN	3RD SUNDAY IN LENT.
21st	M	
22nd	TU	Royal Horticultural Society—Fruit and Floral Committees at
23rd	W	Society of Arts at 8 P.M. [11 A.M.]

### GROWING MELONS IN COLD FRAMES.

**I**N treating of Melon culture in cold frames or cool houses I do not wish to disparage hot-water-heated structures and pits or frames warmed by fermenting materials, for I grow Melons in them every season. By such means fruit is obtained at earlier and later periods, and with greater certainty in summer; but there is no reason why Melons should not be satisfactorily grown in cold frames. This I have proved for ten consecutive years, and though the crop was not equally good each year, there has not been what could be termed a failure. The fruits were sent in to table with those grown in artificial heat, and, what is of more consequence, the varieties were the same; indeed, they were the choicest named varieties, and a great number of seedlings, not one inferior to any in commerce. All depends on the treatment; therefore any variety will succeed under this mode of culture, a good Melon being as easy to grow as a bad one.

The seed is sown at the beginning of April in turfy loam rubbed fine, three parts filling the pots, and pressing the soil down gently. The seed is covered half an inch deep, and the pots placed in a hotbed in which Cucumbers or Melons are growing. When the seedlings appear the pots are raised on inverted pots so as to have them near the glass, for it is important that the young plants be kept sturdy. When the seed leaves are formed pot-off singly in 3-inch pots and return to the hotbed, shading from bright sun until established. Water must be carefully afforded to keep the soil moist. The temperature of the hotbed must be 60° to 65° at night, and 70° to 85° by day, according as sun heat may affect the day temperature. Two things are important—the plants must not be given bottom heat, and they must be kept near the glass. Pinch the point out of each plant at the second rough leaf if intended for frames, but if intended for trelliswork allow them to grow, securing the growths to a small stick, and rub off the laterals as they show until stems are secured that will reach from the soil to the trellis. Shift the plants when the pots are filled with roots into 5-inch pots, render the soil firm, and return to the hotbed. The plants must not be allowed to root into the bed, but should be placed on slates or inverted pots to prevent this. Two or more shoots will result from the stopping, and should be reduced to four if more than that number; and if but two shoots start stop those at the second leaf, and when the new breaks are produced reduce them to four, as that number will be required—*i.e.*, two for training to the front, and two to the back of the frame.

By the middle of May the plants will be strong and the

frames at liberty, having probably been occupied with bedding plants, winter Lettuces, forced Potatoes, or Violets. The pits must face south, be well exposed to light, and have shelter from the north. Their depth from the glass to the soil may be from 12 to 15 inches. Ours are lean-to pits, and frames both lean-to and span about 4 feet wide, used for Lettuces and Violets through the winter. If the depth be more, material should be placed in to bring the surface of the soil up to the required height, about 10 inches depth of soil being necessary, and that need only be ordinary garden soil, preferably rather strong. The soil is scooped out in the centre of the frames lengthwise to the depth of a foot in the middle, forming a concavity, and this is filled with any short littery dung and leaves in a partially reduced state that may be at hand. It is trodden down and covered with about 6 inches depth of soil, which is also rendered firm. The lights are placed on and kept closed for three days or a week. In that time the sun will have warmed the soil, and the plants may be placed out one in the centre of each light, the soil being well firmed about the balls, giving a good supply of water at a temperature of 90°, and extending a foot from the plant all around. Water them very carefully afterwards for some time.

In after management it is necessary to afford a protection of mats or other covering at night up to the middle of June, putting them on about 5.30 p.m., and withdrawing them about 7 a.m. unless there is frost, when they may be allowed to remain an hour later. Commence ventilating from 75°, and allow the temperature to range from 80° to 85°, and close at 75° to 80°, but not so early as to cause a rise above 90°. At closing time a sprinkling of water at 90° over the surface of the bed from a rose watering pot will be an advantage, being careful to keep it from the collar of the plants, and to employ it only on bright afternoons. Attention must be given in training the shoots, taking two to the back and the same number to the front at regular distances, securing them with pegs if necessary, but only for a time, as the pegs cause water to lodge, and this induces decay of the stems. Rub off all laterals to within 6 inches of the stem, and remove every alternate lateral on the shoots. This is necessary to prevent overcrowding. Stop the shoots 9 inches from the sides of the frame or pit. The laterals will show flowers at the second or third joint or both, and when these are beginning to open the sprinklings must be discontinued, leaving the lights open about half an inch constantly at night, ventilating freely in the daytime when circumstances admit. Fertilise the pistillate flowers on a fine day, taking care to apply the pollen to the stigmas. Continue this treatment daily until the requisite number of fruit is set, which should not be more than four to each plant; and if the frames are only 4 feet wide, two are sufficient to insure fine fruits. When the fruits are swelling freely a good watering should be given at 90°, and every week for the following six weeks, regulating the supply by the weather, for, if very hot, water will be required twice a week. Damp overhead every fine afternoon at closing time. Ventilate at 75°, keeping the day temperature between that and 85°, and close sufficiently early to secure an advance to 85° or 90°. When indications of ripening are observed, which may be expected in fifty to sixty days from impregnating the flowers, cease watering, omit the sprinklings, and ventilate a little above 70° so as to dispel moisture early in the day, allowing the temperature to rise to 85° or 90°, and if the weather be

damp ventilate slightly constantly. When the fruit is separating from the footstalk, as it will as soon as it ceases to derive support from the plant, cut it with a portion of stem, and place in a dry airy room for a few days until it acquires an even ripeness, when it will be in suitable condition for table. Some experience is necessary to discern exactly when Melons are at their best. Over-ripe Melons as compared with those even under-ripe are very poor. A good Melon should hold its flesh well and yet be as melting as a Pear.

Other matters of detail requiring attention are stopping the shoots one joint beyond the fruit at the time of impregnation, and to keep subsequent growths stopped to one joint. The plants should be examined at least once a week for this purpose, thinning the growth when it becomes so crowded as to interfere with the principal foliage, which should have full exposure to light and air, the laterals being cut back or removed altogether so as to admit light to the principal growths; but do not make great reductions of foliage at a time, cutting back or removing a few laterals at a time and frequently, so as not to give the plant a check. The fruit must have a slate or piece of glass placed under it to keep it from the soil.

A sowing may be made a fortnight later than the first, which will afford plants for putting out early in June, and will produce successional fruit to the first batch.—G. ABBEY.

### TEA ROSES.

I HAVE received a letter from one of the Hon. Secretaries to the National Rose Society requesting me to correct a statement which I made in my last letter on Tea Roses. Mr. Mawley appears to think that I was referring to the number of Tea Roses required to be exhibited by amateurs. Although I was not doing so I cannot refuse his request, as many other readers of the Journal may have been misled. I cannot do better than quote Mr. Mawley's words. "In your letter to the *Journal of Horticulture* on Tea Roses you appear to be under the impression that Mr. Prince has offered in the amateurs' classes prizes for twenty-four and eighteen Teas respectively. This, however, is not the case, as the enclosed schedule will make clear. It is true that it was at Mr. Prince's suggestion that the number of Teas to be shown by nurserymen was decided upon for the present year to be twenty-four and eighteen. Hybrid Teas were excluded from all the Tea classes last year, and will be again excluded this year. The box of fine Teas was last year disqualified for having a bloom of Cheshunt Hybrid in it."

My remarks were directed to the large number of Teas and Noisettes required of both amateurs and nurserymen, but especially with regard to the latter. Mr. Robert Baker also writes correcting a statement I made as to his not being upon the Sub-committee. I do not know how I can have been misled on this matter, as I was Chairman of the meeting at which the members of the Sub-committee were decided upon, and I distinctly remember the discussion upon the uselessness of nominating men, however valuable, who lived at a great distance from London. However, I am delighted that Mr. Baker is on the Sub-committee, as no one is better qualified than himself.—WYLD SAVAGE.

"WYLD SAVAGE" may be right when, on page 187, he says that twelve should be the maximum number of distinct Teas or Noisettes for which prizes should be given. This is a question upon which opinions differ; but I feel sure that seven out of every ten growers of *Rosa indica odorata* would say with "WYLD SAVAGE" that to get a perfect stand of these Roses, such as would be considered "one of the most lovely sights of a Rose show," twelve trusses must be the limit. But when "WYLD SAVAGE" begins to enumerate the very few Teas and Noisettes which alone he considers fit for such a stand, he alarms me. He abstains from even mentioning names which must bring happy memories and pleasurable sensations. A Lenten penance it must be; or where are Anna Olivier, Comtesse de Nadaillac, Innocente Pirola, Jean Ducher, Madame Willermoz, Perle des Jardins, Rubens, and Marie Van Houtte? Yet all the above are grown for sale by Mr. B. R. Cant as fit for exhibition. And as for Noisettes, may I not add Caroline Kuster?

The last three cruel winters have done much to discourage growers of Tea Roses, and such communications to the Journal as this one from "WYLD SAVAGE" will not improve matters. I should like to see a hundred Teas grown where one is now grown. I should like also to see these lovely Roses shown at the two National Shows in trebles and in masses. As "WYLD SAVAGE" says, the blooms must be most perfect if your stand of twelve is

to come up to a high level of excellence; but in my humble opinion stands of these Roses, as I have seen them at some shows where prizes are offered for the best collection of Tea Roses, are infinitely more lovely than twelve distinct single trusses. Probably Mr. George Prince in choosing twenty-four and eighteen as the number of varieties to be shown has for his object the encouragement of this branch of Rose culture. All amateurs to show eighteen distinct must increase their stock, and some of them the number of their varieties. This will be a good result of Mr. Prince's stipulation. However, I am not going to say that "WYLD SAVAGE" has made a mistake in publicly doubting the expediency of giving prizes for twenty-four distinct Teas, for he is and has been for years a connoisseur in those Roses, and I am one of his young unknown pupils; but I do think that his protest led him to forget the existence of six or eight of the most lovely of his favourite Rose family.

Reverting once more to Tea Roses and exhibitions, how one longs to see stands of trebles, yes, and double trebles, which will include in the half open and bud state Safrano, Madame Falcot, Homère, Céline Forestier, David Pradel, &c.—varieties which the exhibitor proper either does not grow or reserves for his button-hole.—J. A. W.

[Another interesting letter on this subject will appear next week.—ED.]

### THE VEGETABLE AND FRUIT QUESTION.

#### A REPLY TO CRITICS.

I AM truly glad that I happened to start a subject which evidently interests many, and which having led to, I hope, a useful discussion, will lead as a result to profitable action. There have been on the whole up to this time (March 4th) eight articles long and short written and printed since I last wrote, hence it seems now time for me to venture on a reply. I have joined fruit to vegetables in the heading of this paper, because they are combined in my thoughts, and one as much as the other wants investigating, and the supply of both I believe to be inadequate to the needs of the people. An increase of the supply would also, I believe, lead to much profit if the suppliers have energy and discretion. Also the Editor has done me the honour to transcribe to these pages a letter of mine in my county paper, entitled (and I chose, I hope, a catching title), "Plant Apple Trees." I beg to thank Dr. Hogg very much for thus giving a national circulation to what before had only a local one. I want to do good afar off as well as near home.

Now the letters that have appeared from other pens than my own have been naturally of two kinds—letters of approval and the opposite. One general remark: In this almost universal agricultural depression I find it so difficult to get men out of their life-long and set groove, and to get them to grasp a new and probably more profitable undertaking. I fear this sluggish nature which almost prefers quietly starving down to entering upon a new and fresh career is inherited by Englishmen from their Saxon ancestors, those "heavy men in country bred," who loved to eat and sleep, but lacked the adaptiveness of the Norman's nature.

My views have, as I said, been approved and disapproved, the former by the buyers, the latter pretty generally by the sellers. For the benefit of these latter I will tell the following tale: In a certain town the tradesmen in one special line of business, and that one embracing principally the necessities of life, were always complaining that there were too many of them; that trade was slack, nay, insufficient for all to do even comfortably well. Many were worthy men; most were a little bit drowsy, whistled often for want of thought, not seldom had their hands in their pockets—not, they would have said, to turn their money over, but to be easy and comfortable. They did not agree with each other very well, because each wished one or two others would be off somewhere else. But if they disagreed in some points they all agreed in this—that there were too many of them. When lo! another of the same trade came into the town and opened a taking-looking well-stocked shop. "Whew! poor fellow, he will soon be bankrupt, there's no room for him; why we can only just live." This they all said, alone, and to each other. But the new comer did not intend to become bankrupt if energy and skill and civility and cheapness could keep him out of that very disagreeable Court. The old stagers were also roused, and they wished to avoid a smash. A new spirit was infused in all, notice was drawn to the town, and custom came in instead of flowing to the city some miles distant. The fresh man whom nothing could daunt made a fortune, and the others, save an unsteady one, did better than before. Not only do storms clear the air but energy begets energy, and the most energetic man will in trade do the best.

Next I may as well state what is evident, that the market gardeners fear the rivalry of the farmers; their views are strictly commercial, like the tradesmen in the above tale. Theirs is not, considering what man's nature is, a view to surprise us; but that they will succeed in keeping other men from planting vegetables and fruits on a much larger scale is not what I believe; nay, the more strongly they say "don't" the more readily will others say "do." The most energetic will win the race, whatever he be called, or whatever his trade has been.

"A. M. B." speaks approvingly of a larger planting of fruit trees, saying, and rightly, "In fields, pleasure grounds, and even parks Apple trees are as ornamental as Thorn trees; Walnut trees are stately, while Plum and Cherry trees might line our roads, as they do so many of the highways in Germany and other continental States." "A. M. B." also gives good advice as to vegetables; indeed his or her letter is marked by so much wisdom that I would ask readers to turn back to it and re-read it, they will find it on page 126. Again, "F. R., West End," makes a point when he or she says, "If the quantity of vegetables grown is as great as your correspondents expect, how do they account for the almost prohibitory price?" Certainly I hear of vegetables being dear at the same time that they are represented as unsaleable. Mr. Peter Ferguson says plainly, "Most of the Rector's critics have only looked at the matter from a mercantile point of view." The trade view is one way, the housekeeping view is another, this especially as regards vegetables; but as to fruit, all or nearly all agree that there is no superabundance, which implies that there is a living to be made by planting them on an extensive scale hitherto unknown.

There is another point I would notice in the need of teaching the poor to cook. I have always, and have had regularly for years, one servant who is very young, and I train him for good service, with on the whole much success; but the daintiness of such boys, and I believe girls too, is great, and owing to the few meats and drinks to which they have been accustomed. There should be schools of cookery in towns and larger villages, or in one of a group of villages. Popular short papers on good and useful cooking of vegetables, and dishes in which vegetables should bear a part, would be very good things. Cannot any or several lady readers do something for us in this way? To benefit and do good to the poor is an hereditary part, and a blessed part, of an English lady's life and work.—WILTSHIRE RECTOR.

P.S.—To show how the subject of getting more out of land is moving in men's minds. On taking up the January number of "Chambers's Journal," I read in a paper entitled "Experiments in Workhouse Management," "Probably in some instances farming and gardening will be made to play a much greater part than they do now in workhouses, it being calculated that a quarter of an acre of land to every inmate of over ten years of age would make a workhouse absolutely self-supporting. The country workhouses have abundant opportunities of trying that experiment, though of course they will have to meet the usual objections to the utilisation of pauper labour." Everywhere men are seeking to make the land yield more, and from this desire will, I believe, arise a great and grand future position for gardeners and gardening.—W. R.

#### BRIEF NOTES FROM CHISWICK.

AT all seasons the visitor to the Royal Horticultural Society's Gardens, Chiswick, may, however brief his stay, find something worth remembering and recording. So in a recent call of very short duration I observed several plants in flower, respecting which the following notes may be of interest. Turning first to the rockery, though not the best time of year to visit it, there were several charming little plants in flower, especially notable being the

*Crocuses*.—The utility and beauty of these plants for planting in the nooks of a rockery are well exemplified by a number dotted about in small clumps. They are now flowering freely, and render it quite bright in association with several other plants. The forms grown, were, I believe, received from Mr. Maw, the following being those represented—*Crocus Imperati*, bright purple, 6 inches high; *C. lagenæflorus* var. *sulphureus*, rich sulphur yellow with brownish streaks; *C. aureus*, fine golden yellow; and *C. reticulatus auritestus*, very dwarf and neat, with bright yellow flowers.

*Snowdrops*.—A collection of varieties of *Galanthus nivalis* included several forms with unusually large flowers, neat in outline and of great substance. The most remarkable was, however, *G. nivalis* var. *Melvillei*, which bears the name of the gentleman from whom the collection was received. It was rather taller than the majority of the others, with large nodding flowers, pure white, and with broad rounded petals.

*Hepaticas*.—Clumps of the charming blue *Hepatica triloba*

single and double were most attractive, and certainly at this time of year there is nothing to surpass them out of doors. The clearness and brilliancy of the tint affords a most agreeable contrast with the *Crocuses* already mentioned. Near them plants of *Cyclamen ibericum* and *C. Coum*, with the elegant pale blue *Chionodoxa Lucilæ* also attracted attention.

*Epacris*.—In the houses *Epacris* were in very good condition, many excellent varieties being grown; but the two which especially pleased me were *E. elegans* and *E. miniata splendens*, two plants side by side showing their distinctive characters admirably. The former is rarely seen, but it well deserves attention, for though the flowers are small individually they are freely produced towards the points of the shoots, their neat campanulate form and pure white colour rendering the plant most useful for cutting. I do not know when or by whom the species was sent out, but it was included in Messrs. Rollisson's collection several years ago. The other, *E. miniata splendens*, is a well-known and

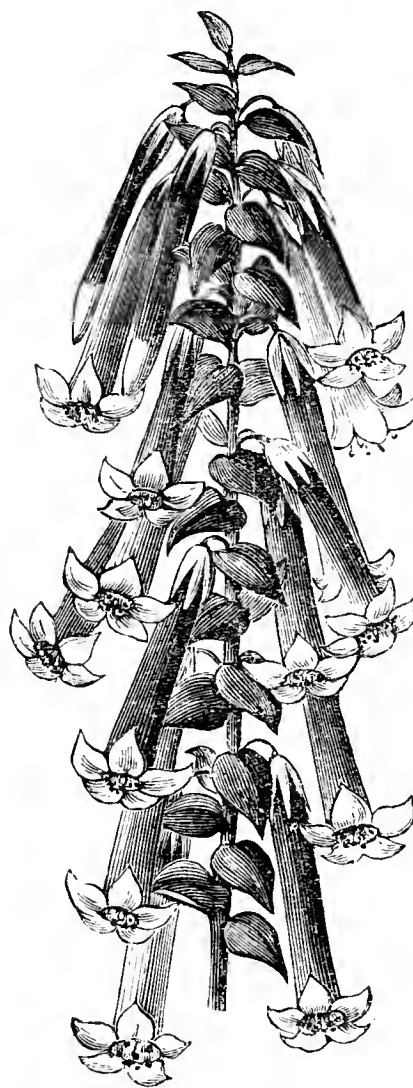


Fig. 47.—*Epacris miniata splendens*.



Fig. 48.—*Epacris elegans*.

remarkably handsome variety, greatly surpassing the species in the size and colour of the flowers. The tube is a brilliant vermilion or scarlet, the small lobes being pure white—a striking contrast. It is very floriferous, but of rather peculiar straggling growth, though with a little care it may be kept in satisfactory condition. The woodcut represents a flowering shoot of each of these *Epacris*, and well shows the form and size of the flowers.

*Sarcochilus Hartmanii*.—To conclude these jottings I may notice two rather singular Orchids which were flowering in one of the warmer houses. A specimen of *Sarcochilus Hartmanii* had about eight spikes each 6 inches high, bearing small flowers with oval white petals and sepals, the lip being diminutive and marked with reddish lines, something in the way of the peculiar *Vanda Cathcartii*. Though not a showy Orchid it is certainly pretty and is very rarely seen. It is quite distinct from any other form in the genus that is known to me.

*Dendrobium Kingianum*.—Though not to be compared with many species of *Dendrobium* in point of beauty, this is yet possessed of some attractions. The flowers are small, about half an inch in diameter, rosy purple, with obtuse ovate sepals, narrow petals, and a small light-coloured lip streaked with reddish purple. They are borne in short few-flowered racemes, which arise from the top of the growth, usually attended by two or four dark



green leaves. It was figured in the "Botanical Register" in 1845, and is there stated to have been obtained by Messrs. Lodiges at the sale of Mr. Bidwill's New Holland plants a few years previously. It has also been known under the generic name *Desmotrichum*.—L. CASTLE.

#### EFFECTS OF THE PAST WINTER ON VEGETABLES.

I HAVE been examining our vegetables, and I must say the sight is not very encouraging. I find to my dismay that we are in a worse state now than we were at this time last year. Last winter Brussels Sprouts were very little damaged; we had a plentiful supply till far on in the spring, at the present time they are nearly all decayed. Ours were planted the first week in April, and were then fine healthy plants. Later plants were dead long ago, which proves that early plantings are the best. Last spring we had plenty of Broccoli that stood the severe weather; this season there are very few. About a fortnight ago I thought that we had come through the severe weather very well, as they then looked fresh; since then the return of bad weather has killed most of them. The Purple Sprouting Broccoli, which is highly recommended by some writers because of its hardiness, was here in Lincolnshire amongst the first to succumb to the severity of the weather. Last year we had plenty of Savoy in the spring that stood the winter well, especially the Drumhead variety; this season they have all suffered alike, not one remains. Veitch's Dwarf Green Curled Kale were very good last spring, I cannot say the same of them this, they have also fared very badly. The London Rosette Colewort is the best green I know of to stand the test of severe weather. August plantings look as fresh as can be, and will give a plentiful supply for some time before Cabbages are fit for use. Prickly Spinach as usual has withstood the severe weather. All should have a good breadth of it and Coleworts. These two vegetables are always acceptable.—J. McK.

#### ROSES ON THEIR OWN ROOTS.

THE reason advanced by Mr. Luckhurst for "own root" Roses being kept in the background by nurserymen—viz., "from the large quantity of stout thoroughly developed wood that must be employed in making cuttings by the thousand, which wood could not well be obtained even in one of the largest nurseries without such a mutilation of the stock as would materially affect its value," is not quite a satisfactory one, as I will attempt to show.

First of all stout wood is not the sort which is best adapted for making into cuttings, that which is small and wiry being far more likely to grow. Secondly, those who have frames to spare for the purpose, as Mr. Luckhurst appears to have, need not wait for the wood to become thoroughly developed, but should insert the cuttings during July, or immediately the first blooms are fading, when, if the work is rightly done, every cutting will grow into a plant within a month. It is specially for those who have no glass that the practice of inserting cuttings of ripened wood is to be recommended, and to be successful with these they must be inserted during October or November, when many of the varieties will strike as freely as Gooseberry cuttings; and I think I might add that all the Perpetuals will do so if taken from a warm wall or from plants which have been well grown in pots, and consequently have their growth well ripened.

I do not consider there is any advantage in having such cuttings under glass, but rather the reverse; for whereas outside they will commence their growth in the natural growing season, under glass they are liable to make growth earlier and of an inferior quality. They should always be inserted rather deeply in the ground, and if protection is needed an inch of cocoa fibre refuse or coal ashes is quite sufficient for the purpose. The details of the operation have been so often given by myself and others in this Journal that I think it unnecessary to repeat them here; and I may say that I am delighted that the practice of growing Roses on their own roots is fast coming into favour even with those who grow for exhibition, and that if the past winter has made us uncomfortable in many respects, it will have the good effect of sweeping away a few more of the remaining parasites, and especially the mop-headed ones.

I cannot agree that propagating by means of cuttings is in any way a slower process than by grafts or buds when once we have a fair stock of any given variety; and in the case of Teas, Noisettes, and Chinas, which for the purpose of propagation may be made into continuous growers, I should not be afraid to back cuttings for a three-years race, both as to number and quality, against any other method a professional propagator might prefer. I must think that our great goddess Fashion is responsible for keeping the best method of Rose cultivation in the background;

it has been in this wise for a number of years, when the standards had it all their own way notwithstanding all that was said against them both by poets and prose writers. Of course nobody could wait to grow standards on their own roots, and ready-made stilts were found for them in the hedgerows; then somebody thought that an odd dwarf here and there was admissible. But as budding and grafting had become established customs there was no thought of doing away with the standards even when dwarfs were employed, especially as ladies and gentlemen had learned to bud, and although it was somewhat clumsily done it was considered an accomplishment. Nurserymen of course benefited by the delusion (as they still do by others I could name, and are not to be blamed for it), for the average age of a worked plant is only three years, and own-roots plants live long, while those among amateurs who bud the most, from some reason not very clear to me, also buy the most.

When we heard of amateurs during the good times of a few years ago spending annually from £30 to £100 on Roses, we could but rejoice at their prosperity as well as their enthusiasm for the queen of flowers. But all hobbies, whether of the animal or vegetable world, are liable to be ridden to death, and the Rose hobby is no exception. The standard has gone I hope for ever; many of its admirers are silenced through misfortune and disappointment, while those who only moved along slowly still hold their ground, and their enjoyment, if not quite so emotional as that of their fast-going brethren, is undiminished and will continue. I would say to those who have lost most of their stock, and will probably when they know their full loss think seriously of giving up Rose-growing altogether, to take courage and a lesson from some of their less ambitious brethren, and they will find the Rose still worth growing, although in one respect it is like fire and water, a good servant but a bad master.

Of all Roses to grow on their own roots Teas are the most satisfactory, because their existence depends on shoots sent up from the base while the plants are quite young, each shoot becoming stronger than its predecessor as the roots increase, and the best shoots are those produced immediately above the roots, which in the case of worked plants would be the stock. I have to-day inserted about a hundred cuttings in three varieties, which, if I have the opportunity of doing justice to, will all make flowering plants by the autumn. I no more expect that a cutting of these will fail than if they were so many Verbenas. It is of course possible they may fail from accident or neglect, but if they do it will certainly be from some cause which might have been prevented and which can be easily traced. The cuttings are formed of small shoots which have lately flowered. They are taken off mostly close to the old wood, although this is not absolutely necessary, for as long as the wood is about half ripe and the leaves are healthy they will strike very freely. They are placed firmly in boxes where there is 3 inches of sandy soil and 5 inches of space above it; they are then mounted on a couple of bricks in the path of a forcing house, heavily watered, covered with panes of glass, and made almost airtight by means of strips of paper pasted over the edges, partly on the glass and partly on the wood, and so they remain till growth commences. The three varieties are Souvenir d'un Ami, Catherine Mermet, and Devoniensis. Alba Rosea is a favourite too, but the plants of it have not been forced so early, and they are consequently not yet in condition to supply cuttings. Tea Roses two years of age are in 15-inch pots, and will flower well about the end of this month. For early forcing they must be older plants, and are best cut hard back to the ripe wood, but young plants need no pruning.—WM. TAYLOR.

#### PROLIFEROUS HYACINTHS.

HYACINTHS were better matured last season than for several years past, and this will account for their producing better blooms than usual, and may also be the cause of some of them throwing up several flower spikes. Some varieties are more prone to do this than others; but this year I have noticed it more than formerly, particularly in one of the varieties (Argus) mentioned by Mr. C. M. Major, which appears to have this property this year in a marked degree. In one collection I saw a few days ago most of the bulbs of Argus had from two to four spikes, and may therefore be said to be both "many-eyed" and "many-spiked." The seasons in Holland, like ours, are liable to variations, and when the spring is cold and backward the bulbs suffer in consequence. Should this be the case during the last year of their preparation they cannot be expected to produce spikes of bloom so good as when ripened during favourable seasons.

I noticed last year when the bulbs arrived that they were very fine, and appeared to have been well matured, and I anticipated that the spikes they would produce with careful treatment would

excel those of several years past. With reference to the second part of "C. M.'s" remarks as to the reason why the bulbs do not produce as fine blooms the second season; he will readily understand the cause of this when he is informed that before we receive them they have been specially cultivated for several years, during which period they are not allowed to bloom. After flowering once the strength that has taken years to put in the bulb is exhausted. When we consider the size of the blooms produced we do not wonder that the bulbs are comparatively worthless for another season.—J. H. S.

#### NOTES ON BOILERS.

MR. STEPHEN CASTLE'S questions (page 172) open up a wide field for discussion, as scores of people can give evidence in favour of, or against, any boiler ever invented, or any arrangement of pipes or size of mains. I would first call his and others' attention to the power of the boilers referred to. In looking over the lists of two rival makers of the Witley Court form, I find that one gives 30 inches long by 21 wide and 32 deep outside, as being capable of heating 1600 feet of piping, while the other says 800 feet only. These discrepancies in describing the power of a boiler lead to the larger portion of the failures often described, and also explain the contrary experiences of those who have the good fortune to have boilers supplied them to work the smaller quantity, or rather have had a much larger boiler to work the piping referred to by others in their correspondence. In Wright's, as in other special boilers made by one firm only, they are careful to give a much lower calculated power, so as to ensure the success of their particular patent.

As to the general question of depth of stokehole and economy whether in first cost or after consumption of fuel, I do not believe there is much difference; but neither of them can compare for speed in getting up heat with other forms where the hot water passes direct into the flow pipe without travelling over half the boiler to find an outlet and forcing before it a quantity of cool water equal to many feet of piping. All flow pipes should rise from the boiler without any dip whatever, even if only one house is to be heated. A boiler close to its work is the best, as the first 20 feet in length of pipe must of course be the hottest and give off its heat somewhere. A 2-inch main having only one-fourth the water contents of a 4-inch is necessarily hotter and quicker in imparting its heat, being also of thinner metal, but it cools more quickly for the same reasons. Four pipes must give more heat than three placed in similar position, as the heat given off depends mostly on the larger area exposed; the water inside one flow would be a little hotter naturally than in two flows.

As to dampers, they are of great use in a chimney, as the fire heat will rush up the chimney if left open whether there be a supply of air at ashpit or not, especially in frosty weather. I should fancy Mr. Castle's failure to keep his fires going more than five hours is due to having the damper too far out, as the fire will inevitably die out if no supply of air to it and the other outlet wide open. It is simply a question of good stoking and keeping sides of boiler clean, so that the fire can act upon it, as a quarter of an inch of hard caked soot is about equal in resisting heat to that thickness of iron.—B. W. WARHURST.

#### CULTURE OF THE COCKSCOMB.

THE Cockscumb is a very useful summer decorative plant, but it is not often seen in good condition. The first consideration is to procure a good strain, those having good crested flower heads being the best, although many prefer large ones, but they are often coarse. It does not require a hot-water-heated structure to grow them, as they will thrive best in a dung frame. The seed should be sown at the present time in a light compost. When the young plants obtained are large enough to handle pot them off singly into small 60's, plunge in the frame, and keep them close to the glass till they show their flower heads, when the plants may be potted into 48's, using a little decayed cow dung with the compost. Keep the frame at a good heat and plunge the pots. Continue shifting till the plants are in 16-size pots. As the flower heads reach maturity ventilate more freely. They only ought to be 15 inches from the rim of the pot to the top of the comb, which may range from 24 to 30 inches across. I have heard of larger, but have never grown them.—A FLORIST.

TO PREVENT THE GOOSEBERRY CATERPILLAR.—Boil some white hellebore powder in water and place it in a tub or garden engine, adding sufficient boiling water to syringe all the trees; when it is cold apply it on a dry day, to dry on the leaves as soon as the trees are in leaf immediately after blooming, and before

the fruit has grown. One application is sufficient for the season, and does not injure the fruit. One pound of white hellebore powder is enough for sixty trees, and is best applied with a hand syringe. I have tried this plan for years and found it to answer.—S. M. DIGGLES.

#### HARDY PLANTS AT DRUMLANRIG.

"PEREGRINE," who is better known to gardeners as a peddler in satirical observations than as a trustworthy dispenser of useful knowledge, has some savoury remarks in a contemporary on my recent notes in these pages. The clever cynic cannot conceive how I could tell the condition of his fondlings "under 6 inches of snow." This is the pith of his "joke," and at the risk of robbing it of any of its splendour I must give plain facts against "wild imaginings." As I stated before, "6 inches of snow and the thermometer about zero" were experienced on the journey to Scotland, but where is it recorded that there was "6 inches of snow on the herbaceous border" at Drumlarnrig? No doubt it would have been agreeable to "PEREGRINE'S" purpose if a covering of snow had concealed the subjects of his never-failing theme from exposing their shortcomings, but unfortunately for him and them nothing of the kind was there. Disappointing this will no doubt be to such an acute critic as "PEREGRINE;" but as he evidently has a strong ambition to be prominently identified with the subject, let me suggest a few headings under which he might advantageously employ his talents. 1st, How is it that if we want to see hardy plants cultivated to perfection, and valued and appreciated to their full worth, we must go to the gardens of those who have least to say about them? 2nd, Is it fair for any writer who does not even possess a presentable collection of hardy plants to taunt men who *do* possess complete collections and grow them well, about their want of knowledge of those plants and sympathy respecting them? 3rd, Under what dispensation has one or two gardeners been endowed with all the knowledge in the world belonging to their calling, and the multitude left without the common faculties of seeing, hearing, feeling, or understanding? Vain "PEREGRINE!" —PARAGON.

#### NOTES FROM MY GARDEN IN 1880.

##### AURICULAS.

IF in recording my experience with the Gladiolus last year I could throw up my cap and shout "ooray!" I must alter my song when I come to think over my Auriculas, and say "All round my hat I wear the green willow" in the words of a ditty I remember in years long ago; for so unsuccessful have I been, although I have grown them for forty years, that I have almost made up my mind to abandon their culture. I had no difficulty in growing them until the invasion of this abominable pest the woolly aphis, and it seems rather too hard that a little thing like this should upset one's culture of a favourite flower.

The history of this pest is a curious one, but there is no need of entering at length into it. Now it was apparently unknown until a few years ago, although I have been assured by a grower that he remembers it forty years ago, but had never heard of it since until a few years ago. When it first appeared it was spoken of as a pest which affected the plants most injuriously, that they had a very distressed appearance; but then very few persons had it in their collections. When I made my complaint about it I was assured that it was nothing of much consequence, that I could easily get rid of it; and when I stated that I found it not only on the Auriculas, but as far as I could see on even the Lettuces and Sowthistle, I was calmly told by Mr. Douglas that if a person had Sowthistles in his garden he could not expect to grow florists' flowers. Pretty well from a head gardener who has a liberal master and gives him plenty of hands; but at that time Mr. Llewelyn was suffering much in the same way in Wales, and brought up some specimens of the aphis. Various remedies were suggested—tobacco powder, sulphur, and paraffin; but will not this latter especially kill the plants? Of course you may kill anything by injudicious application; but when talking over it with Mr. Llewelyn in the presence of Dr. Hogg, Mr. L. said, so far from its injuring the plants he thought they rather liked it. The Dr. said he could quite understand that, as it acted as a manure to the plants, giving some of those constituents that they require; but no application seemed to be successful. Whether it is that any insects remain in the crevices of the roots or the stem of the plant, or whether it is another incursion from without, I know not; but they came again, and no washing or anything else seems to avail. Then came a change over the spirit of the dream. It was found that there was not a collection in the kingdom that had not got it, some more, and others in a slight degree. One most successful grower who would not buy in any plants, and would not even go to an



exhibition for fear of bringing it back with him, wrote to me and said he had found it not only in his Auriculas but in his garden, and that he did not intend to send out a plant until he had got rid of it. Another grower near at hand has been greatly troubled with it, and in all directions the same tale is told. But now we are assured it does no harm, that it may be left unmolested and the plants no way suffer. I cannot credit this, although I think that in Alpines and strong growers amongst show varieties there may be enough roots both to supply the plant with nourishment and also to feed the aphids; but I can never believe that an insect like this can suck the juices of the roots, which it is provided with means of doing, and yet do no injury. The result of it all, as far as my experience goes, is that it has in some way or other quite blasted my hopes, and that I have been so unable to overcome any difficulties that I am seriously contemplating giving up Auriculas. I have been sneered at, my inability to exhibit ridiculed, and this has been one of the unpleasant things connected with my failure. I had before thought that amongst lovers of flowers there was a kindly feeling that misfortune would only bring out, but there are exceptions, I suppose, to every rule. I have, however, to thank some kind friends for proffered help, which, however, I have for the present declined. It is pitiable to receive good plants and then see them become "small by degrees and beautifully less;" and so until I can feel that I have turned the corner I must content myself with the few I have left.

I am going this year to adopt an heroic measure. I shall place my frames, as I usually do, facing the north for the summer months. These frames I shall fill up with rough drainage more than half way up; on this I shall place a few inches of good friable loam without any manure. I shall then shake out the plants, wash the roots thoroughly, and plant them out in the frames. They shall have during the summer all gentle rains, being only covered during severe downpours, and then I shall see what the result will be. I have two very good authorities on my side in attempting this plan—Mr. Llewelyn of Penllergare, and Mr. Woodhead of Shibden Head. The former already adopts the plan of planting out and has found it to answer very well, and says that they can be lifted up from the frames and exhibited without any loss.

It will easily be seen, then, that I have but little to say upon new varieties as far as my own collection is concerned, for I have not ventured to run the risk of endeavouring to procure any; but I believe that we may soon expect to have some fine ones brought before us. Especially do I anticipate that Mr. Woodhead will produce some fine sorts; his system of hybridisation seemed to be so thorough that it ought to insure success. As yet the numbers added to our catalogues within the last few years has been small; and both those who only care for them on the home stage or those who exhibit are still dependant of those older varieties which date back twenty, thirty, or many more years.—D., Deal.

#### WINTER-BLOOMING PELARGONIUMS.

CHARLES SCHWIND is, I think, without doubt the best all-round winter-blooming variety we have. Much attention has been called to Guillaume Mangilli, a most excellent variety for summer blooming, and winter also in a warm house; but I think it is quite possible some disappointment may ensue with respect to this variety, if, as is quite probable, some of your readers infer from what was said that it has some special winter-blooming qualities (surpassing in that respect other varieties), and that it may be cultivated with success in winter in ordinary greenhouse temperature. Now this is certainly not the case. In a house maintained at a temperature of about 10° above that of an ordinary greenhouse it succeeds, but then which of the tribe does not under such circumstances? They are all nearly equally good in this respect. Under suitable cultivation they may be had in bloom in December and January, not with meagre trusses, but as gorgeous as those of May and June, the colours of the light varieties and some of the crimsons being absolutely preferable to those of summer. There is a great difference of shade in many of them in the two seasons; the whites are far purer, and some of the crimsons exquisite in winter. But are there any varieties which can be relied on to do fairly well in an ordinary greenhouse? and this is the real purport of this letter.

I will give my experience of the past season. For the first time for many years (through the failure of a boiler in the autumn), I have been compelled to let them take their chance this winter in what was practically an unheated house until Christmas, as until then no means of heating existed, except two oil stoves used only just barely to keep out frost, and even under these adverse circumstances Charles Schwind bloomed excellently. It was far away in the first position. Lizzie Brooks and Titania

(Denny), did well; an old variety, Colonel Holden, also was good, and so was an old double variety Emily Laxton. In this company Guillaume Mangilli was simply nowhere. In the low temperature it refused to open its blooms at all. I think, therefore, it would be well to caution any of your readers who may, perhaps, have gathered an impression that it is good in an ordinary greenhouse against expecting too much from it.

In conclusion I will name two or three of the newer varieties which appear likely to be excellent for winter blooming. They flowered well with me far into the winter, and this on plants not specially prepared for winter blooming, which they always ought to be by previous summer disbudding and proper culture. These are Sophia Birkin, Lizard, and Aida. The last named had some exquisite flowers to the end of December. These three are light varieties each distinct, whilst in the deluge of scarlets and crimsons we are getting too large a proportion of, to borrow Mr. Paul's phrase as applied to Roses, "the too much alike."—C., Amwell.



THE meeting of the ROYAL HORTICULTURAL SOCIETY on Tuesday next promises to be one of great interest and attraction. Messrs. Veitch's Hyacinths have never been finer than they are this year, and a splendid group will be staged. We have seen the plants at the Coombe Wood Nursery, and they will be in their best condition at the meeting. Other plants including Amaryllises from Chelsea will add to the richness of the display. Messrs. Osborns' Hyacinths, we are informed, are very good, and we presume will be exhibited. Mr. Moorman, we believe, will stage a group of plants similar to the one for which he was awarded a gold medal last year. Captain Patton's Spiræas and Dielytras are, we learn, very fine this year, and he is growing a large collection of Hyacinths. These with other contributions from the leading nurserymen, and the competition for the silver eup and prizes for Hyacinths and Tulips, may be expected to produce a display worthy of extensive patronage. Expressions of regret have reached us from exhibitors that this and the Spring Show of the Royal Botanic Society do not occur during the same week, as to exhibit at both Shows will involve expense in the carriage of plants that they consider might have been avoided; besides, the same Hyacinths cannot be in the "best" condition for the two events.

— MR. CHARLEY of Ogbear Hall Gardens desires to endorse what was said on page 195 respecting VIOLET ODORATISSIMA. He obtained it last year from Mr. Cannell, planted it out in an ordinary border, and now it is producing its fine fragrant flowers in profusion. Another gardener who grows a large collection of Violets says, "Carters' elegantissima is identical with odoratissima, and both are Prince Consort, or I have not had them true."

— MR. WALTER HILL of the Brisbane Botanic Gardens has issued a pamphlet containing a LIST OF ECONOMIC AND OTHER PLANTS which are grown in that garden, a collection of which was exhibited at the Melbourne International Exhibition, 1880. The plants are arranged under their respective natural orders, with brief descriptions of their chief characteristics and properties.

— WE are desired to remind the supporters of the PELARGONIUM SOCIETY that the Executive Committee, having to resume activities, need the usual pecuniary aid of the subscriptions that are now due. And we are further desired to invite lovers of flowers who are not members of this Society to enrol themselves in the brotherhood, the liability thereto being only one guinea per annum, but, with permission to subscribe any additional amount. The Treasurer is Henry Little, Esq., Hillingdon Place, Uxbridge.



— WE have received from Messrs. Petter & Galpin Part 25 of "FAMILIAR GARDEN FLOWERS," and Part 7 of "PAXTON'S FLOWER GARDEN," continuations of those works. The former contains coloured plates of *Plumbago capensis* and *Geum pratense*, both fairly well executed and accompanied by interesting descriptions. The part of "Paxton's Flower Garden" under notice has a coloured plate of hardy Azaleas, representing the varieties Judith, Meteor, and Sylvio, the form of the flowers being well delineated, and also one showing two varieties of *Cattleya labiata*, good in form but rather deficient in colouring. In the "Gleanings and Original Memoranda" we observe that a suggestion we made some time ago has been acted upon—namely, the removal of capital letters from specific names, except where warranted by the accepted rules of nomenclature. This is a decided improvement, but there is still another needed. The authorities are given for the names of all the plants described in the old edition, whereas they are omitted from those added to the present one, which appears a singular inconsistency.

— FOR the purpose of SAVING SEED OF PRIMULAS the plan is usually adopted—and it is a safe one—of having late-sown and late-flowering plants for this object. We recently saw at Mr. Cannell's establishment at Swanley a house 100 feet long filled with Primulas, the seed of which is nearly ready for harvesting. How far the hot-water pipes affixed to the roof have contributed to this result by drying the pollen of the flowers we know not, but certainly a finer set of seed has never come under our notice. Some later plants are still flowering, which are remarkable for their vigour, and the size, purity, and richness of the flowers. Another structure is filled with Cinerarias, some of the flowers exceeding 2 inches in diameter. There is also a fine collection of double varieties, the flowers of which are just commencing to expand. A house 240 feet long and 15 wide for the purpose of growing winter-flowering Carnations, and two other large structures for Show and Fancy Pelargoniums, are being erected. Zonal Pelargoniums were as brilliant as they usually are any time between January and December. The new white variety that was certified under the name of Eureka was in splendid condition, its large white globular trusses borne on stalks a foot long.

— WE regret to learn that MR. JAMES ALEXANDER, SENR., died at Redbraes, Edinburgh, on the 12th inst. The deceased gentleman was the senior partner in the firm of Messrs. Dickson and Co., Waterloo Place, Edinburgh.

— WE have been informed of the following GARDENING APPOINTMENTS—Mr. W. Yeomans, late gardener to Mr. Smythe, Basing Park Gardens, Alton, has been appointed gardener to Robert Schwartz, Esq., Crow's Nest, Crowborough, Tunbridge Wells; Mr. David Evans, late gardener to D. Pugh, Esq., Manor-avon, Carmarthen, has been appointed gardener to Mrs. Bullar, Basset Wood, Southampton; Mr. Z. Welbourne, late gardener to C. Coombe, Esq., Cobham, Surrey, has been appointed gardener to James Blyth, Esq., Wood House, Stanstead, Essex.

— THE thirty-seventh annual Exhibition of the SCOTTISH PANSY SOCIETY will be held in the Royal Scottish Society of Arts Hall, 117, George Street, Edinburgh, on Friday 17th June. There are seventy-four classes in the schedule, all for Pansies or Violas.

— THE schedule of the READING HORTICULTURAL SOCIETY announces that the Spring Show will be held on May the 12th, and the Autumn Show on August the 18th. The usual liberal prizes are offered in the numerous classes for plants, flowers, fruit, and vegetables, but there are a few interesting additions. For instance, at the first exhibition three prizes are offered for a group of Rhododendrons to occupy a space of 12 feet by 11 feet, and the same number of prizes are offered for twelve Show and twelve

Fancy Pansies. At the other exhibition there will be classes for Dahlias in pots and collections of double Zinnia blooms.

— THE SPECIAL LECTURES delivered in the course of last year in connection with exhibitions of the ROYAL HORTICULTURAL SOCIETY were so largely attended, and proved altogether so satisfactory, that it is with much pleasure we hear that arrangements have been made for a similar series in the forthcoming season. The Tulip, the Auricula, and the Carnation appear to be already provided for, and we shall hope that means will be found for the treatment by the same process of other equally interesting subjects. The first of the series will be on the history and peculiarities of the Tulip. The lecturer will be Mr. Shirley Hibberd, who will discourse on the subject in the conservatory at 3 P.M. on Tuesday next.

— A REVISED list of arrangements for the ROYAL BOTANIC SOCIETY'S EXHIBITIONS has been issued, in which we observe the date of the second summer Show is altered from June the 22nd to July the 6th, the evening fête being fixed for June the 22nd instead of June the 15th.

### DOUBLE CINERARIAS.

ALTHOUGH it is some years since the introduction of these from Germany, they have not taken so high a position as the single forms, which is not surprising, as they are not nearly so attractive; indeed the best of the flowers were for a time after being introduced at best crumpled semi-doubles, very indefinite in colour, and having a very weedy aspect. In many of the seedlings now, though there has been a great advance, the flowers are very small, dull in colour, and not fully double. For decorative purposes the florist forms are far more telling—indeed ninety-nine out of a hundred of the doubles raised from seed are not worth growing. Still there are some really good doubles having flowers which for size, fulness, purity of colour, and distinctness are effective and enduring both on the plant and in a cut state. For the latter purpose these are superior to the singles, which do not stand long. I have grown them every year since their introduction, having fresh seed each year, and by selection have secured some with good flowers and bright colours. These will have to be perpetuated by suckers or offsets, but by saving seed of the best of the semi-doubles a number of the progeny afford double flowers, and by continuing in this lead it is likely we shall have several useful varieties. The forms I have obtained from thousands of seedlings are dark blue, large, very good; light blue, also large and fine. One of the most beautiful is white tipped with pink. Rose-coloured flowers there are in various shades, as light, deep, and mottled, also pink and mottled pink, and other colours that may be termed crimson, purple, with carmine, mauve, and magenta. A good white I have not had, but there are whites variously tipped and tinted. The double Cinerarias need only careful selection and improvement to make them as general favourites as the others.—G. P.

### THE GLADIOLUS.

ALL growers of this grand flower of course conform to the instructions contained in the cultural notes prefixed to the catalogues issued annually. These are very brief—Trench or dig deeply; manure liberally; stake duly; protect the blooms; water freely in dry seasons; and—this they do not add—await what at best is but a doubtful issue of your labours.

It is now only five years since a splendid stand of some three dozen spikes exhibited at North Berwick by an esteemed friend—alas! now no more—whose name was prominently associated with the Gladiolus, inspired me with the determination to add this to my other favourite flowers. Since then my attachment has strengthened, my stock has been gradually increasing; and now, after a season in which my losses nearly amount to all those of former years together, it has been reinforced by additions which considerably raise the aggregate and promise increased attractions. It does not require much obstinacy or Scotch "dourness" to refuse to accept one year's losses as a sufficient dissuasive when set against four years' gratifying success.

It is on all hands conceded that the Gladiolus is in many respects a mystery. Change of ground is recommended by one, and by another this is considered unnecessary. Shallower or deeper planting has in my experience, even with the same variety, appeared

to have little influence. I suspect that the cultivation of them in the same ground for seven years, referred to by "D., Deal," comes under my own cognisance. I know other cases where, for five years at least, they have been planted in the same spot with the usual varied results. My own have for four years out of five occupied the same beds, and I mean to plant in the same again. Having hitherto manured these heavily I will dig in a good quantity

last year to remove to a garden at a little distance from his former one. This ground had for years in succession been planted with Potatoes. It was treated by him in the usual way. Losses of course occurred, but more uniform large-sized corms than those we were inspecting the other evening were surely never lifted. This is more to be observed, as I find smaller roots to be the rule this year, judging from those procured from different houses.

I fancy that my plants showed an equal average strength to his, but with few exceptions I obtained much smaller corms.

The ordinary vagaries of the Gladiolus are numerous. I have put fine healthy-looking roots into the soil, and after the others were a foot high have found these lying as planted, not a rootlet formed, and persistently refusing to grow under any treatment. As a contrast take the following. I saw a root of Lulli cast aside as hopelessly diseased; to my eyes it seemed quite useless. An acquaintance, more by way of joke than anything else, planted it. I saw a fine spike last autumn from that same corm; there could be no mistake, as such a variety was not in the possession of my friend previously. Again, out of six plants of Shakespeare growing in the same line, one, certainly not more promising than the others, produced a spike that for texture and colouring surprised all that saw it. One plant out of several of Horace Vernet cast with my neighbour a spike such as I have never seen, except, perhaps, one of my own three years ago. I had only one plant of Le Vesuve last year, and had I known nothing of the variety but from my own blotchy ill-set flower I certainly never would have had another. With my friend it was in every way magnificent; therefore I have added another root or two of that. Were Henry XIV. in reality the ragged ill-conditioned fellow he showed himself on his first appearance here he would be quite unworthy of the society in which he found himself; but we know that the disguise was but assumed. Some of my finest plants, after producing such flowers as live in one's memory, ended in that grand flare-up and—extinction. Of Meyerbeer, which never kept sound with me before, I lost only one root; and of Ondine, the most fickle of the fair, not one; and so on.

Of Mr. Kelway's varieties I have hitherto had only about a dozen. These have conducted themselves with me in much the same way as the others. Last year Brennus, Ball of Fire, Dr. Hogg, Pictum did well, and my friend had Lassia really splendid. I have added considerably to the number of my varieties of Mr. Kelway's raising, and I owe him thanks. No, they are already tendered, for something more than for the excellent corms of those obtained directly from himself.

I may be wrong, but the quality of the roots appears to depend a good deal on the quarter from which they are obtained. I know at least that those I get from two sources of supply are invariably superior to those procured from some others: I refer more particularly to houses supplying the French varieties. We have not here seen the newer additions from the Continent mentioned by "D., Deal," in his interesting paper (by-the-by, African is, as he knows, Souchet's, not Kelway's); but if these are decided advances on such varieties as Brongniart, Camille, Daubenton, De Mirbel, Mons. Legouv  , Murillo, Ondine, Orpheus, Phoenix, Psyche, and many others, they must be good indeed. Whether these must bow in deference to H.R.H. the Duchess and her train of lords, ladies, and other magnates from Mr. Kelway's collection will, I hope, in due time be seen.

Meantime, with snow lying at a depth of nearly a foot all round and still falling heavily, with roads drifted up so as to be in many parts impassable, and with every appearance of a continuance of the storm, there is as yet little prospect of furthering acquaintance with these or their less distinguished attendants;

and so we must c'en rest a little longer, inspecting the roots, consulting catalogues, and imagining forthcoming beauties during the season. May imagination end in reality, and the season be a favourable one.—A NORTHERN AMATEUR.

MANY of the newer-raised seedlings are said to be very tender,

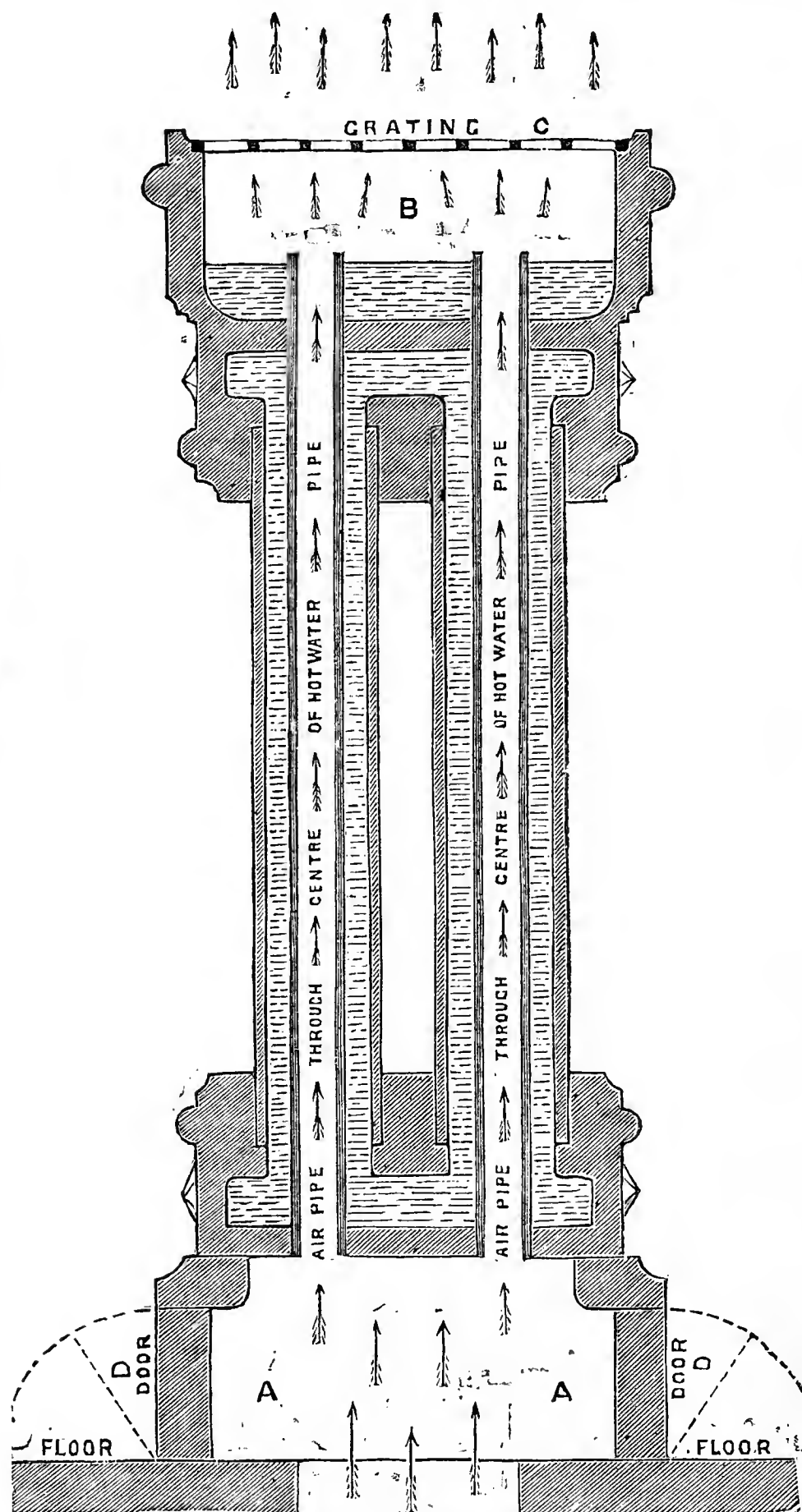


Fig. 49. (See page 213.)

of leaf soil, which I have before now found beneficial. I shall, however, of necessity bring in another bed in ground not hitherto occupied by Gladioli, and shall observe the issue. I may adduce what seems to be in favour of a change of ground, the case of a neighbouring amateur, an enthusiastic admirer and most successful grower of these unrivalled flowers. Circumstances caused him

liable to degenerate, and capricious in flowering. The price of new certificated hybrids, however, places them beyond the reach of most amateurs. Take Mr. Kelway's, for instance. Of those of last year the cheapest, the Countess of Craven or Maid of Orleans, is half a guinea going up to 50s., the price of Samuel Jennings. Leaving such out of consideration when recommending Gladiolus culture generally, permit me to state the system that for years has enabled me to increase my limited stock considerably, and that gives me at all times and in every season fine spikes. As this is the planting season, as no garden should be without Gladioli, and as "D., Deal's," excellent notes were principally retrospective, I may not inappropriately do this, and for brevity under the following heads—

**Soil.**—The soil should be free, well pulverised, and tolerably rich. If not so, trench and dig in manure in autumn. The ground need not be left idle, as any surface-rooting hardy annual will do no harm and look well. The manure should be buried shallower than usual, as the winter rains would otherwise carry the better parts beyond the reach of the feeding roots.

**Manure.**—There is nothing like finely divided old hotbed manure, or in its absence good saturated stable manure. Long strawy material is worthless. The former would answer admirably for application at present sowing; the latter manure, not being decomposed is suited for autumn manuring.

**Planting.**—Plant early, especially those more tender varieties you have found difficult to mature. I wish to emphasise this maturation point, for I believe it the pivot on which success or failure turns. I prefer the end of February: a little protection against April or May frosts is easily managed. Where successions are necessary, the hardier and easier matured should be left last, though I know this is not the custom. Potting in the first instance would meet the case in most instances and obviate risk.

**Method.**—If necessary bury some manure beneath the corms; with a little clay, and a handful of clean river or road sand. The last is indispensable. A supply of liquid manure during the hot summer is very desirable.—W. J. M., *Clonmel*.

#### MARÉCHAL NIEL ROSE.

THERE has been rather a pleasing discussion in our Journal as to the best means of growing Maréchal Niel, and it may interest some of your readers to know that I have under my charge here one tree which I suspect is older than the one alluded to by Mr. Bardney at Hooton Hall. I have been often told that it is the largest Maréchal Niel in the north of England, and I have even heard that it is the oldest and largest in England; but as to the correctness of this I leave others to decide. The age of the tree here is eighteen years. It is budded on the "Victoria" stock, the length of which is 4½ feet. Circumference of stem 4 inches. The longest branch from the stock is 50 feet. The longest growth made last year was upwards of 20 feet. The total number of branches trained from the stock about twenty. The tree is planted against the back wall of a vinery 50 feet long, and is trained the whole length of the adjoining house, which is 30 feet long, thus making a total length of 80 feet. In addition to this length, 5 to 6 yards of some of the branches are trained back. The Rose is planted at the back of the flue, and the roots have passed under it probably to the Vine border outside. The aspect is due south. The first year I had charge I cut fifteen hundred blooms, last year eighteen hundred, and this year I am promised at least two thousand blooms. For many weeks last year from 140 to 150 were cut.

As to my treatment, I tie in all young wood; and at this time of the year I give weekly from four to five large buckets of liquid manure direct from the cow house. I regret to see that many of your correspondents find the Maréchal a delicate Rose to cultivate. My experience has taught me otherwise, but I hope to hear more about aged Maréchals in the country and less of delicate constitutions. This fine Rose tree may be inspected by visitors.—WALTER W. BROWN, *Foreman, New Gardens Nursery, Whitby*.

NOTWITHSTANDING all that has been said to the contrary it is a significant fact that exceeding few examples of Maréchal Niels of mature age are to be found in the country. The oldest and best I have heard of are on the Banksian stock, and they are some ten years old or thereabouts. I have long been interested in this fine Rose, and speak not without experience of its peculiarities. That it can be propagated with facility from cuttings, and will produce wonderful growths during the first and second year or so, is an undoubted fact, because it has been propagated in this way on an extensive scale in some of our best-known and largest nurseries; but it is equally true that the plants mostly die at an early age. I said to the propagator in one of these nurseries not long since, "How do you account for the mortality?" The reply was, "I can't tell you I'm sure, but we have many com-

plaints of the fine young plants we send out dying." These young plants, I may say, have been unusually fine and well grown, producing shoots 10 to 12 feet long the first season in 9-inch or 10-inch pots. I have had some of these plants myself, but all are dead now except two, and they are dwindling, having grown but little since they were planted in cool structures and just protected from frost and allowed to come on naturally. There cannot be a doubt, I think, of the precarious constitution of this Rose, notwithstanding the few isolated examples among the thousands that are grown that one hears of from time to time. We have lately heard a good deal from one of your correspondents about the Hooton Hall five or six-year-old plant, which cannot be regarded as an old Rose as Roses go, for much-pruned standards twenty years old may be found, and much older wall Roses of various kinds. There is that about the history of the Hooton Hall Maréchal Niel also which creates misgivings as to its condition. We are told, page 188, that two shoots are now observed starting from the base of the plant, and these Mr. Hanagan thinks of cutting the whole of the old wood down to—the fine top that has produced the hundreds and thousands of blooms, and of which he has been so legitimately proud! Why, I would ask, cut such a fine tree down to two suckers if it be flourishing as we are told it is doing? It would be an almost barbarous action, and excusable only in an extreme emergency—to save the life of the plant for example. Mr. Hanagan has, it appears, repeated this cutting-down process from time to time with other plants of the same variety. As to the crop of flowers "exhausting the energies" of the "Maréchal" or any other Rose, that is an open question. That the fruit or seeds do exhaust a plant no one doubts, but it has yet to be proved that a crop of mere flowers has any debilitating effect whatever. It is just as reasonable to suppose that a Vine or Peach, &c., can be exhausted by being permitted to flower only without being allowed to bear fruit; but such does not happen. We should certainly expect a Vine or Peach, from which the flowers were removed annually as soon as they fairly expanded, to go on growing vigorously for an indefinite time, and if the Rose is an exception to the rule it is for those who maintain as much to explain why it is so.—J. S., *Yorkshire*.

#### WEEKS'S HYDRO-CALORIC COIL—A COMBINED MODE OF HEATING AND VENTILATING.

THIS system cannot be better described than in the words of the inventors of it, and their description with the accompanying illustrations will make the subject plain to our readers.

"In addition to warming the air of the hothouse, room, or apartment in which the apparatus stands, it at the same time brings in from the outside a constant stream of fresh warm air, and that, too, without creating the slightest draught.

"On reference to the illustrations it will be seen that the coil, which stands on a kind of wooden box, presents outwardly the appearance of an ordinary hot-water coil, having top and bottom iron chambers connected by vertical pipes. On examining the plan, fig. 51, and section, fig. 49, however, it will be seen that each of these vertical pipes, which are 2-inch, contains a smaller or 1-inch air-pipe running through its entire length—in fact, right through the coil, and having its open ends exposed at the top and bottom. At the top the air-pipe is continued about 1½ inch into the chamber B, the open top of which is covered by an ornamental iron grating C. The box or chamber A, is connected by a zinc tube or some other kind of channel with the external air. It also has flaps or doors, D D, for opening into the house or room.

"The effect of this very simple and ingenious arrangement is, that when the apparatus is in operation the heated external surface of the coil (or part seen), heats the air of the room in the ordinary way; but while this is going on, the air in the small inner pipe becomes rapidly hot and naturally rises quickly into the chamber B, and thence through the grating C into the house, drawing in its course a constant current of fresh air from the outside, which in its turn passes through the coil, becomes warm, and enters the room as before. The following is a table showing the amount of air this coil will bring in and the temperature.

Temperature of water in apparatus.	No. of cubic feet of fresh warm air drawn in per minute.	Temperature at which the air is admitted into the house.
120°	15	90°
128°	19½	98°
136°	20½	109°
142°	21½	114°
144°	22½	116°
148°	23	117°

"By means of the chamber B the air can be admitted dry or



moistened at pleasure. If dry air is desired, chamber B is left dry; if moist a small quantity of water is poured in, sufficient to come up nearly to the top of the air-pipe (see section); and this water, being in contact with the top of the hot-water coil, becomes warm and gives off a gentle moisture.

"This coil is invaluable for hothouses of all kinds, particularly

forcing houses and vineries, as it enables them to be thoroughly ventilated in the most inclement weather without opening lights and sashes, as is necessary under the ordinary arrangements, thus avoiding the danger and damage to the crops too often caused by cold draughts.

"It may also be used as a fumigator for destroying insects, &c.

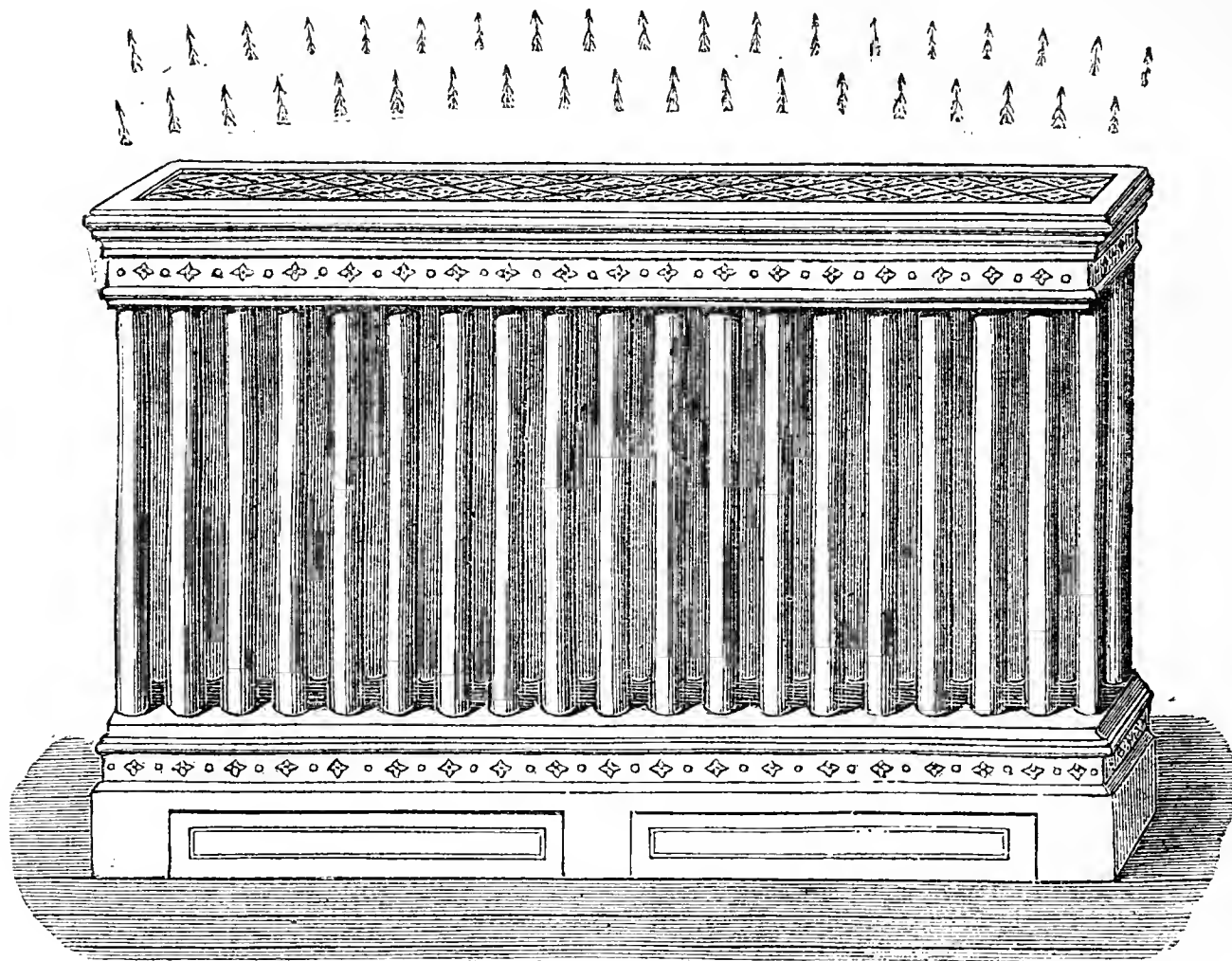


Fig. 50.

By burning the substance with the fumes, of which the air is to be impregnated at the mouth of the air channel, the building may be rapidly and thoroughly charged with any odour that may be neces-

sary. In the same manner the plants may be fed with ammonia or other essence if desired.

"It can be fixed to any existing apparatus; in fact, an admirable

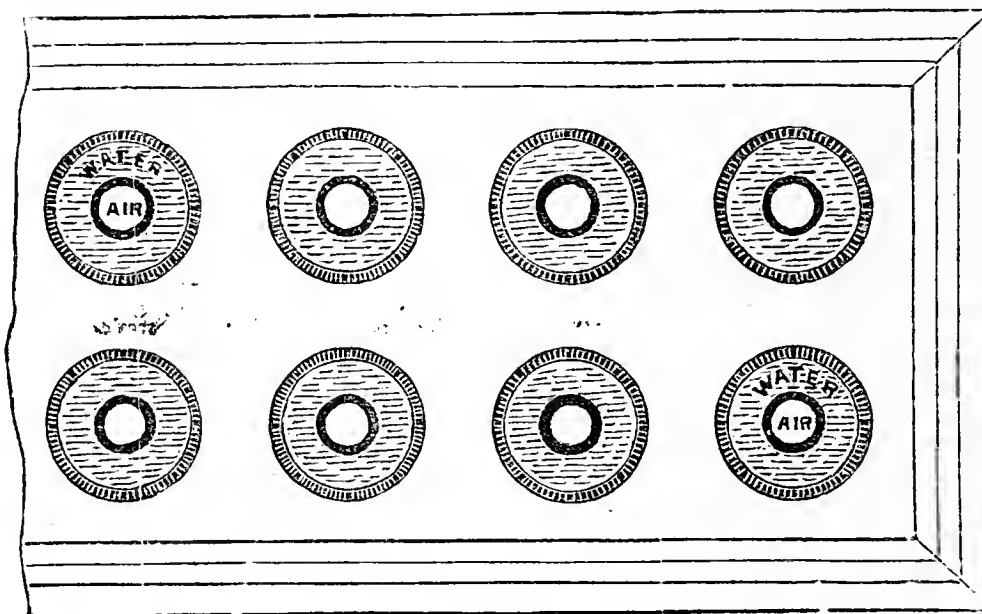


Fig. 51.

mode of increasing an apparatus of deficient power would be by inserting one or more of these coils as might be found necessary (see fig. 52). This could be done with very little trouble, and only slight alteration of the existing work.

"One of the chief merits of this invention is that there are no fans or machinery for forcing in air. It is self-acting, requires no valves and no attention; but so long as the circulation continues it must perform its work in an efficient manner.

"The utility of this coil is not confined to horticultural structures;

for, in the form of fig. 50 it is admirably adapted for schools, churches, hospitals, prisons, halls, staircases—in fact, all classes of buildings whether public or domestic. It supplies an urgent and long-felt want—viz., a simple and satisfactory method of introducing pure warm air into buildings without draughts. It is particularly valuable for hospitals and sick rooms, for (as before explained) it not only induces a constant change of air, but enables them to be thoroughly disinfected at pleasure.

"It may be mentioned that the doors or flaps marked D D, in

conjunction with another flap at the mouth of the air channel, enable the warmth to be got up very rapidly in a cold room—thus: The flap admitting the air from the outside is closed and the doors D D opened. The result is that the air of the apartment is drawn in at doors D D and passed through the coil, and this process goes on until the whole of the air in the apartment is warmed, when the flap at the mouth of the channel is again opened and the flap D D closed. Used in this manner the coil is at least 40 per cent. more powerful than an ordinary coil of the same size."

We have carefully inspected the working of this apparatus,

and can testify that its action was thoroughly satisfactory. The influx of warmed air as tested by the anemometer was even greater than represented by the above table, and when a little ammonia was poured in the box outside the house communicating with the coil, the fumes in a few moments pervaded the apartment. Many practical gardeners admit the value of ammonia in vineries and Cucumber houses, and obtain it by placing guano in the evaporating troughs, believing that it not only invigorates the Vines and plants but is an antidote against insects. By the use of this apparatus as much warm air, moist or dry, as is needed

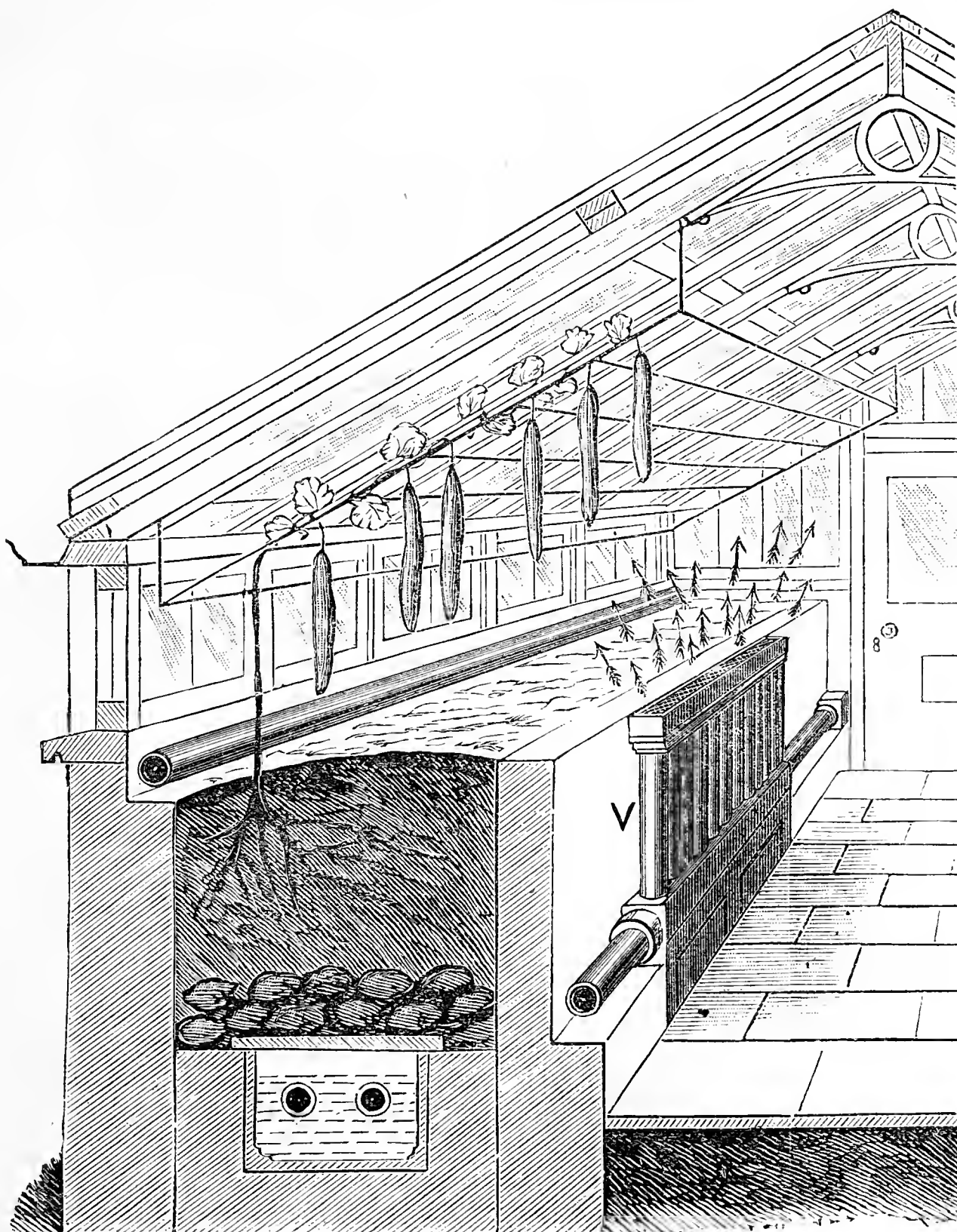


Fig. 52.

can be admitted to a structure during the coldest days, and as much ammonia as is good for the crops can be provided, and a great deal more; but this of course is at the command of the cultivator, who must exercise his judgment in this matter.

#### CALANTHES AT DRUMLANRIG.

I READ with great pleasure the interesting article by "PARAGON" on "Drumlanrig in Winter," at page 165, in which reference was made to the Calanthes grown there. During the dull winter

months these beautiful flowers are not surpassed by any for utility or elegance, and hints or suggestions as to their improved culture are naturally received with satisfaction. The remarks of "PARAGON," however, appear to me somewhat complicated. He states that at the time of his visit (midwinter) the pseudobulbs were being potted and promised well for flowering. It would be interesting to know at what period of their growth Mr. Thomson pots his Calanthes. Does he pot them after the flower spikes appear? It is the custom of many to pot after the flowering is over and the plants have had a period of rest.

A good grower of *Calanthes*, Mr. J. Peers, Hillside, Wavertree, who exhibits them in great excellence, repots his plants when the young growths at the base of the pseudo-bulbs have pushed about half an inch, which is generally about the middle of March, and at that period of their growth it would be premature to judge of their flowering capabilities.—A. R. Cox, *Elm Hall, Wavertree*.

### THE GREAT FROST AND ROSES.

I HAD proposed to make some final remarks after pruning my standard Rose trees. After going over my two hundred trees I find, however, that, like the needy knife-grinder, "Story, there is none to tell, sir!" They are all equally now walking sticks with a round top and a feeble hope of not being quite killed. The heads were not protected, and I have not been able to prune back to sound wood with any one of them, except, perhaps, Fisher Holmes and Baron Bonstettin. I am glad to find the Hybrid Teas emerging better than the Teas. In spite of the general adverse feeling I still hold to these, and expect to see some achieve popularity—certainly the red Gloire de Dijon, Reine Marie Henriette. The more I inquire the more terrible I find the havoc amongst Roses in this neighbourhood. The firm of Ivery at Dorking have lost very largely; and that large grower Mr. H. Appleby, at the Boxhill Nurseries, estimates his losses at between four and five thousand, Teas having been killed in spite of careful straw protection. Both up and down the Mole I hear the same history. Thermometers carefully placed and watched have registered below zero. At Wonham Manor the head gardener of the Misses Marjoribanks, Mr. Good, gives 33° of frost on January 17th, and 34° on January 25th; and even this is exceeded at Burford Lodge, the residence of Sir Trevor Lawrence, where I understood 35° was registered on January 25th. I am particular in giving these, which coincide with my own observation, as I find happy people in warmer latitudes rather incredulous. That high authority Mr. Edward Mawley pronounces "that most minimum thermometers are very queer at very low temperatures." The common Laurels in these parts have suffered very severely, a day of hot sun at the time of the chief frost having apparently been especially injurious.—A. C.

AMONG all the catalogues, descriptions, and books on Roses, I never found Gloire de Dijon mentioned as anything but very hardy. This year, however, has proved fatal to five or six fine trees on Briars about four years old, and which were making splendid and well-ripened growth, three especially having nearly covered a south wall and porch. On cutting a bough that had fallen from the wall, to my surprise the pith was brown. Little by little I cut, gently at first, for I could not believe my favourite was killed; but in five minutes my tree was a heap of fragments, not a sound bit either green or old wood was left without the marks of frost, and so with the others. Strange to say other Teas, Niphetos for instance, has survived, but that was mulched above the union. This year the thermometer stood at 5°, last year at 7°, and the year before about the same. Can the 2° have made the difference, or was it the terrible winds?—GOOSEQUILL.



### HARDY FRUIT GARDEN.

THE prolonged cold weather has so far proved beneficial by retarding the expansion of the flower buds. The mild weather we are now experiencing is, however, causing them to swell freely. Apricots will be in flower shortly, and must be attended to in covering, or frost may destroy all hopes of a crop for this season. The buds of Peaches and Nectarines are also prominent, and dressing, nailing, or tying-in should be completed as soon as possible. Although these appear better than for the last few years the wood is not well ripened, and such should be cut back to the shorter-jointed and matured wood at the base of the shoots. The protective material must be prepared for covering the trees by the time the flowers show colour. Complete tying-in Apple and Pear trees trained as espalier or cordons, and cut back the leads of these and pyramids to about 12 inches to produce shoots for furnishing the trees. Figs that have been protected during the winter should now be uncovered. Pruning

is best deferred until the young fruits are visible. Excessive pruning must be avoided, cutting out only the stronger or unripened shoots as far as practicable during the summer, so as to insure a regular quantity of short-jointed well-ripened shoots. These, except when required to fill vacant space, may be allowed to grow from the wall to the extent of about 9 inches, and at the winter pruning it will only be desirable to moderately thin these to prevent overcrowding, and by judiciously stopping the points of those bearing fruit short-jointed fruitful wood will be secured.

### FRUIT HOUSES.

*Vines*.—The work in this department will require energy and method to keep pace with the requirements in disbudding, pinching, tying down, and thinning. Disbudding should be performed as soon as the most promising shoots can be determined, and only those should be left that can have full exposure to light and air. Care must be exercised in tying down the shoots, as when young they snap easily. As soon as the fruit is set cut away the bunches not necessary for the crop, removing those badly set, small, or badly placed. Commence thinning as soon as the berries are swelling. Keep up a good supply of moisture in all houses. Afford tepid liquid manure to the inside borders copiously, and sprinkle with guano water, so as to have the atmospheric moisture charged with ammonia. Where Grapes are colouring a rather dry atmosphere should be maintained, and a free circulation of warm air afforded, which is essential to good colour and finish. The rods of late Vines started at the beginning of the month should be syringed several times a day, and the border well damped every evening.

*Cherry House*.—Grubs are often troublesome on the foliage in its young state. They are of two kinds; one is enclosed in a case attached to the under side of the leaves, and must be carefully sought and destroyed, or it will soon give the leaves a scorched appearance, and will also perforate and destroy the fruit. The other will be found rolled up in the leaves, and is easily destroyed. Ventilation is of primary importance in the cultivation of the Cherry under glass, and must be attended to. Commence ventilating at 50°, at and above which allow a free circulation of air through the house, but regulating it according to circumstances. Artificial heat will be necessary to maintain 50° in the daytime, and at 40° to 45° at night, continuing former instructions in other respects for the present.

### PLANT HOUSES.

*Ferns*.—Pot at once any plants that need it, for if the young fronds are growing when it is done they will be checked. The best soil for delicate Ferns is good peat with about a sixth in equal proportions of sand and charcoal broken small, loam being added for those of stronger growth. If the fronds are required for cutting or the plants for decorative purposes, grow them in a light position and do not have the atmosphere very humid.

*Orchids*.—The growing season now commencing will necessitate a greater degree of moisture and heat. The evaporation troughs must be kept full of water, and the benches and floors have water poured over them morning and evening. In sunny weather plants that have commenced growth will be benefited by a light syringing in the afternoon. Plants on blocks will require frequent syringing. The water employed for all purposes must be soft, clear, and tepid. Except on sunny days little ventilation will be needed. Shake out *Calanthe vestita* vars. and *C. Veitchii*; cut the old roots away, and repot in a compost of three parts fibrous peat, old cow dung and fibrous loam a part each, and a similar proportion of broken pots or charcoal. Drain the pots well, and keep the plants rather dry until they begin to root, after which good supplies of water are necessary. Supply *Sobralias* with weak liquid manure, also *Calanthe Masuca* and *C. veratrifolia*. *Cypripediums* and *Cymbidiums* may also have a little weak liquid manure. Repot *Anguloas* in good fibrous peat, filling the pots half full of crocks, and over those place a layer of sphagnum, and then peat and potsherds, keeping the pseudo-bulbs slightly raised above the top of the pot. The temperature for the East India house 65° at night, or a little higher in mild weather, 75° by day, rising 5° to 10° from sun heat; Mexican house 60° at night and 70° by day; and cool house 50° at night and 60° by day. *Disa grandiflora* when growing strongly will be the better if the pots are in saucers. If



larger pots are needed shift now, using lumps of peat with a little sphagnum and sand, affording good drainage.

**Forcing House.**—Many plants will be starting into growth naturally; nevertheless, a successional batch of such as *Dielytra*, *Deutzia gracilis*, *Prunus sinensis alba flore-plena*, *Viburnum Opulus*, *Kalmia latifolia*, *Rhododendrons*, not omitting *R. odoratum*; *Azaleas*, *pontica* being very sweet, English and Ghent varieties very beautiful, and *mollis* varieties finer still and forcing quickly. Lilacs must not be omitted, and Double Thorns with Sweet Briar are generally esteemed. Roses also must be grown in quantity. Pinks, Lily of the Valley, *Hoteia japonica*, and *Spiræa palmata* will need to be forwarded in gentle heat, a temperature of 50° artificially being sufficient, and 10° to 15° or more from sun heat. A few *Lilium auratum* and *L. longiflorum* also should be placed in heat, and they will be useful when flowers are not very plentiful. To succeed these and to precede those in the open ground a cool house should be devoted to a successional batch of *Liliums*, ventilating freely above 50°. Damp the plants early in the afternoon of bright days, and moisten available surfaces in the house before nightfall. Violets, though late from the prolonged cold, are coming in well from plants in frames, and should have ventilation freely above 40°, withdrawing the lights with the external temperature over 50°. Water them when necessary with weak liquid manure, and do not allow any deficiency of moisture at the roots, or the flowers will suffer.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

**Hardy Climbers.**—Climbers are seldom sufficiently closely pruned; or instead of thickets of growth with a minimum of bloom we should see a vigorous growth, which would be neater in appearance and give the greatest amount of bloom. Roses, Clematises, Honeysuckles, *Cratæguses*, *Pyrus japonica*, *Jasminums*, and *Forsythias* are improved by being occasionally hard pruned, the young growth or the laterals of this following invariably giving the most satisfactory results. Roses that are uninjured and thinly trained should have all lateral growth spurred-in to about two buds of the main branches, all spray closely cut out, strong leading shoots laid in where requisite, and the fastenings generally made good. *Maréchal Niel* blooms best on the young growth, and this should be laid in thinly, cutting out any not required and as much old growth as possible. Early-flowering Clematises to have the young growth thinned out only, and the late-flowering, such as *C. Jackmanii*, to be cut back freely to induce the formation of strong flowering shoots. The Japanese Honeysuckle should have the thickest growth cut away, the young growth that will follow to be neatly laid in. Spur-in all lateral growth to near the main branches. *Jasminum nudiflorum* and *Forsythia viridissima* may be freely pruned where necessary immediately after flowering, laying in a few leading shoots where required. The long growths of deciduous Magnolias and *Chimonanthus fragrans* to be spurred in, leaving any of the flowering heads of the former. Ivies may be cut closely in, or if getting too heavy may be cut down; the young growth following, and which is generally the prettiest, to be thinned out and nailed up where necessary. The neat-growing *Ampelopsis Veitchii* needs but little pruning, but the old Virginian Creeper requires to be cut over. The former is much the better variety. The lateral growth of *Wistaria sinensis* to be spurred-in to near the main stems, laying in young growth where space is to be covered.

The present is a good time to plant climbers. Where the border is very poor a little good fresh soil should be added, especially if previously occupied by plants. Climbers are usually distributed in pots, and can be more quickly established in them if the roots are carefully opened out, cutting off those bruised or in an unhealthy state prior to planting. Do not bury them deeply, neither go to the other extreme, or they may probably suffer from drought. If the soil be dry supply water freely in the course of a week, and mulch with short fresh manure before hot weather be anticipated.

**Pruning Roses.**—This operation should now be performed in almost all localities. Many standards have been killed by frost; those much injured may yet produce fresh growth near the union of bud with the stock providing they are cut hard back. The growth resulting, if it does not flower freely, may yet lay the foundation of a good head of bloom the following season. Vigorous growers with sound wood

should not be cut back very closely, and may be left 4 or 5 inches in length; weaker growth being cut to about the second bud, in each instance pruning to an outside bud. All sprays should be cut clean out, and straggling heads be cut into shape. It is these old straggling heads that are most injured by frost, rather closely pruned heads remaining more vigorous for years. Dwarf trained, and those on their own roots especially, are comparatively uninjured, and for the future will doubtless be more generally grown. They may be pruned similarly to the standards, or the strong young growths may be retained to a good length and pegged down, cutting out the old flowering growth to induce the formation of other strong growth for the next season. The pruning of the dwarfs should not be neglected, or they will soon be beyond control. The Roses should be pruned in a manner similar to the Hybrid Perpetuals, or the young growth retained and the old cut out where possible.

#### PLANT HOUSES AND FRAMES.

**Propagating Bedding Plants.**—Pots of autumn-struck cuttings or old plants and roots of Verbenas, Lobelias, Heliotropes, Petunias, Veronicas, Ageratums, Abutilons, Dahlias, and Salvias, ought now to be placed in a gentle heat—a mild hotbed being suitable—in order to induce them to furnish cuttings freely. Any of these will strike readily in the aforesaid hotbed, providing a little ventilation be allowed should there be much steam in the bed. This is especially necessary this season owing to the excessively wet state of the heating material. The cuttings will also strike freely in boxes or pots covered with squares of glass, and placed on a staging near to hot-water pipes or flue in a forcing house. Both boxes and pots should be of sufficient depth to admit of a layer of crocks covered with a little rough material, 2 to 3 inches of fine sandy soil with a thin layer of sand on the surface, and a good depth for the cuttings so that these may just clear the glass; the latter to be kept on closely till the cuttings are struck. The tops and side shoots are the best; cutting the former clean across close to the third or fourth joint, and the latter with a heel or small piece of the old wood attached, trimming off the lowest pair of leaves in both instances. Insert the cuttings firmly and rather thinly up to the lowest leaves, and water in with a fine-rose pot. Coleuses, Iresines, and *Alternantheras* may be struck similarly to the preceding. The tops of bedding Pelargoniums when made into cuttings should be dibbled in round the sides of 6 or 8-inch pots, draining well and using light gritty soil. They strike best in a dry heat, and should not be watered till it is seen the soil is become rather dry. Glass should not be placed over these, as they are very apt to damp off. Cuttings of succulents, such as *Kleinia repens*, should be placed on a shelf to heal previous to being inserted, and but little water must be given until they are struck.

**Sowing Small Seeds.**—Lobelias, Pyrethrums, Petunias, and *Penstemons* ought now to be sown. Use light sandy soil, and either pans or boxes; drain these well, make the surface even, and water through a fine-rose pot a few hours previous to sowing. Distribute the seeds evenly, press them in with the bottom of a pot, and cover very lightly with sand or fine sandy soil. Closely cover with squares of glass, place on a gentle hotbed, and shade heavily till the seeds have germinated, when the glass should be tilted, and shading from bright sunshine only. Moistening from the bottom by partially immersing in a pail of warm water in preference to dashing water overhead. Tuberous-rooted Begonias, Gloxinias, *Torenia Fournierii*, and other choice fine-seeded plants may at this time be reared in the same manner as the foregoing. Fine peaty soil should be used if possible, otherwise leaf soil must be substituted.



#### THE STRAW HIVE.

I HAVE been honoured by a kind invitation to read a paper on "The Straw Skep and How to Make the Most of It" at the next quarterly meeting of the British Bee-keepers' Association, which will be held in London. The distance between Sale and London is too great for an old man somewhat shaky to travel on such an errand, and hence I did not accept the invitation, but I may

contribute a few observations on the subject to the *Journal of Horticulture*.

I admire the straw hive very much. Of all known hives it is the best looking, and of all hives used in Great Britain and Ireland it receives the greatest patronage. It is suitable for all persons, places, and seasons. I have used it for fifty years, and use it still with increasing confidence. The straw hive offers advantages which no wooden hive can for the comfort and safe keeping of bees in winter. If not too firmly sewed the straw hive affords a healthy ventilation, and permits the moisture to pass off through the walls uncondensed. Straw hives firmly sewn and thickly coated with paint, and with wooden hives of all kinds, the difficulty of removing the moisture of hives is very great in winter, and if allowed to remain it decays the combs outside the brood nest. Many schemes and inventions have been tried to clear the moisture from wooden hives in winter. The quilt has been tried, and perforations of their sides and crowns too. Wire gauge and cavity walls have been tried; last of all chaff has been used in the cavity walls, but whether any of these inventions and efforts have been uniformly successful I cannot say.

Straw hives in spring are certainly covered and kept warm, easily handled and examined. It is no small advantage to a working man to have hives which he can speedily turn up and examine internally. Anyone expert could turn up twenty straw hives and see all he requires inside in twenty minutes. Hives offering such facilities for examination enable bee-masters to ascertain how fast brood is spreading, how soon supers will be required or swarms expected. With other hives these things can be ascertained, but not, I think, with equal ease and speed.

At the time of swarming, and in natural swarming, the straw hive has no advantage whatever over other kinds of hives. At the season of swarming the heat of hives and the fanning of bees drive out by the doors all the superabundant moisture of hives. Hence there is no condensation of moisture in the height of summer. With straw hives the process of artificial swarming is simple and easy. Being easily handled they are turned up and placed on their crowns, empty hives placed over them, and swarms extracted from them by drumming—about five minutes is required to extract a swarm. This process of artificial swarming is a very near approach to Nature. The process generally adopted in the bar-frame school is a very unnatural one. About half the combs and half the bees are taken from a moveable-comb hive and placed in an empty one. It does not matter whether the queen goes with the colony or is left in the mother hives, as both hives have combs with brood in them, and therefore the bees without the queen can rear a queen for themselves. The removal of the combs with the bees is most hurtful to the mother hive and of questionable advantage to the swarm. This artificial method in swarming frame hives is not an argument against the moveable-comb hives, which could be swarmed as ours are by a method less artificial and without the removal of the combs. The difference of the two systems are now mentioned merely to show that moveable combs are of no advantage in either artificial or natural swarming.

In supering the straw hive has all the advantages and conveniences of other kinds of hives, for supers large and small and of all kinds of material—glass, wood, or straw—may be placed on it. Sectional supers may be placed on one to any extent. I am inclined to think that the Stewarton hive has a slight advantage in supering over both the straw and frame hives.

Cross sticks used in straw hives give them the advantage in some respects. Cross sticks give firmness and security to the combs, and thus prevent accidents and breakdowns in handling hives or in removing them from place to place. In summer there is great risk run in removing moveable-comb hives from one place to another, even when the bars are pretty full of combs, but straw hives with moderate care and fairly ventilated may be safely carried or sent by a common carrier from one end of the country to the other. They owe their safety to the support given to the combs by the cross sticks. Cross sticks in hives are advantageous in another respect. The bees in fastening their combs to them leave a small hole or byway at every stick or crossing, and thus four or five cross lanes or short cuts are made from side to side through the combs of every hive. For nadiring, eking, and enlarging the straw hive is probably unequalled, as every kind of enlargement can be securely fastened to it by nails.

Now let us come to the drawbacks of straw hives—viz., the inconvenience of fixity of combs and their unsuitability for the use of artificial comb foundations. Often have I admitted that moveable combs in hives are advantageous to clever bee-keepers, and that they can be well and profitably used under certain circumstances and at certain junctures in the management of bees. In a favourable year for honey gathering, or when almost

all hives are too heavy for keeping, the moveable-comb system appears to some advantage—I might say great advantage. Let us suppose that we have ten hives at the beginning of September weighing 80 lbs. each, all too heavy for stocks, and each containing twelve frames. How easy and how pleasant it would be to the bee-master to take six honey bars from each hive and leave the six central bars for the bees to winter in. Then it would be a stroke of good management, and no very difficult matter, to unite all the bees and combs of the ten hives in five of them; thus sixty bars of honeycomb—not all virgin comb—would be obtained, and five good stocks full of combs and well populated with bees. This would be capital practice, and nothing better can be said in favour of the moveable-comb system. Doubtlessly the moveable-comb hive offers other advantages, but all together would not outweigh the one now mentioned. Suppose that each of the five stock hives referred to contained 15 lbs. or 20 lbs. of honey for the bees to winter on. Suppose that all the honey was taken at the first and capitalised, putting £4 or £5 more money into the pocket of the bee-master, and all the bees put into empty hives—five in number—and fed with syrup into stocks at an expense of 20s. or 25s. This is my method of management with straw hives under such circumstances; and if any gentleman were to offer to sell me five stocks formed by the union of second-hand combs and five stocks—bar-frame stocks—formed by feeding with sugar syrup, I would much prefer the syrup stocks to the others, and give more money for them and expect greater results. This is a question of great importance in the management of bees.

One more objection to the straw hives I have to notice—viz., the difficulty of using and utilising comb foundations in them. This, doubtlessly, cannot be gainsaid. The straw hive as at present made offers very few and small facilities for using comb foundations, but if made with wooden crowns artificial foundations could be introduced and used in straw hives as easily and successfully as in bar-frame hives. I lately wrote on this subject showing how easily pieces of the foundations could be dropped into straw hives through slits in the crown boards and fastened on the outside. I think it would be quite as easy to introduce artificial foundations through the crowns of hives as it is to fasten them to frames. What is wanted is not the possibility of using them, but satisfactory evidence that their general use in hives would be remunerative. My opinion is not settled on this question, and I shall be pleased to find that artificial foundations are worth more in apiarian practice than all that has been said about them. I have frequently said that natural comb, pure and white, is much better for use in supering than artificial foundations, and I have as frequently hinted that such natural virgin empty combs may be produced at a cheap rate. This idea is worth a consideration. I wish some enterprising young apiarian would commence a factory for the production of natural virgin comb for use in supering. If such could be produced at a moderate price there would be a great demand for it.

Let us come again to notice the straw hive and the introduction of a swarm into it. By giving the bees 6 lbs. of sugar in syrup, costing 1s. 6d., in three or four feeds, they build combs down to the bottom stocks, the hive is nearly half filled with combs and brood in less than a week, and under sunny skies it will do more for a poor man than an Ayrshire cow will. What have I not seen done for many a family by four or six such hives in a garden. It is a useful, cheap, and profitable hive, and I know none better.—A. PETTIGREW.

#### THE HEATH BEE AND THE CAUCASIAN BEE.

[THE following paper was written for the Cologne bee meeting, but in consequence of the death of the author was not delivered, and has been published in the "Bienenzeitung," from which this translation has been made.—ALFRED NEIGHBOUR.]

GENTLEMEN.—I have no intention of drawing a comparison between the Heath bee and the Caucasian bee; I only wish to give you a short account of my experience as regards each of the two varieties of bees.

To begin with the Heath bee. The demand for Heath bees has been very much on the increase lately, though this is certainly not due to any special recommendation, and it no doubt proves that the good qualities of these bees are becoming more appreciated. It is a peculiarity of the Heath bees that they increase largely and give off many swarms, for which reason they are especially suitable for those bee-keepers who are anxious to increase their stocks, and therefore rejoice to see their bees swarm frequently. But the Heath bees do not only give off many swarms, they also collect large quantities of honey, as may be seen in the Lüneburg Heath district. In no part of Germany is the honey harvest so large as it is there, for while in other parts of the country pots suffice to hold the honey which the bees collect, the Lüneburg Heath bee-keepers are able to fill many casks. People are therefore disposed to look upon the Lüneburg Heath as an "El Dorado" where honey is always flowing, but this is by no means the



case. While in some districts a populous colony will collect 10 lbs. of honey in one day when pasture is plentiful, the outside maximum at Lüneburg is 48 per day. Nor does the Heath yield honey uninterruptedly all the time it is flowering. We are satisfied with an average of twelve fine days for utilising the Heath; if there should be any lightning while the Heath is flowering it frequently puts an end to the visits of bees. In many a year the honey harvest from the Heath is next to nothing. The Heath bee-masters know how to alter their method according to circumstances, and this is the principal cause of their harvesting such large quantities of honey. This affords me an opportunity of giving a few hints as to the management of Heath bees in case of their introduction into other districts. They are particularly suitable where the native bees do not swarm sufficiently. By simply intermixing the two races their hybrid offspring show somewhat more inclination to breed and to give off swarms. The bee-keepers' first and foremost endeavour should be to obtain swarms as early and as large in population as possible, and this he will be able to accomplish if those hives from which he intends the swarms to issue are fed simultaneously with a quarter to half pound of honey two to four times a week, commencing four to five weeks before the time of swarming, continuing the feeding until the first swarm has been given off. Should unfavourable weather set in about the time of swarming and continue, the first swarm might be driven off.

The first swarm will have sufficient population to form a separate colony, but the swarms that follow—and the size of which becomes smaller the greater the number that leave the parent hive—should be united so as to form colonies weighing at least 3 lbs. each. This is the more necessary in districts where there is no autumn pasture, but unfortunately this advice is very often not attended to. Every swarm, however small it may be, is frequently placed as a separate colony, and if it proves a failure people get dissatisfied and blame the Heath bees. When second swarms are put into wooden hives and can be assisted with a broodcomb or two from other hives they need not of course be made quite so large. When bees are found to make preparations for swarming, the drone comb both with and without brood and royal cells should be removed until the bees no longer show any inclination to swarm. If Heath bees are treated in this manner it will be found not only that they increase largely in population, but also that they are able to collect large quantities of honey.

I will now proceed to make a few remarks on the Caucasian bees. I must frankly confess that I had lately become somewhat prejudiced against the introduction of new races of bees. I always found them highly recommended, but on close examination they generally did not come up to my expectation. For the same reason I was prejudiced against the Caucasian bees, and was doubtful whether I had better procure some. While in this state of uncertainty I had a visit from Dr. Butlerow, Councillor of State of St. Petersburg, on his return from France, who requested me to give the Caucasian bee a trial, promising to send me two queens for this purpose from the Caucasus in the following spring. The two queens, each accompanied by a small colony and a supply of honeycomb, arrived here in excellent condition last spring, and were placed at the head of two populous stocks of German bees, the Caucasian bees being allowed to unite with the German. My first experience of the Caucasian bees was that they unite with the German bees without exhibiting the least signs of hostility towards each other. The attempt made a few years ago to unite Cyprian and German bees in the same way resulted in the attack by the Cyprian on the German bees, which in spite of all means of protecting the latter continued for several weeks until all the German population had been killed. My second experience was that they are very prolific and quite as fertile as the best colonies of Heath bees and the Italian bees.

The other qualities of the Caucasian bees could not be determined with accuracy until all the German bees had died off, leaving only Caucasians in the hive. With regard to their docility, which has been praised so much, I am able to state that they are very docile bees indeed. They do not sting when handled as bees generally are. I asked my son to irritate them, which he did, and I saw them buzzing about his face with the well-known angry sound indicating that they were ready to sting, but they did not sting him. After several repetitions one bee was at last induced to sting. We may therefore say, as a rule, the Caucasian bees do not sting, but if they are irritated they are capable of doing so. Because the Caucasian bees do not sting they have been supposed to be very phlegmatic bees, which would neither defend themselves against robbers nor collect much honey. But they are not phlegmatic; on the contrary, they are very quick and industrious. As soon as they make their appearance at the entrance of the hive they at once fly off to the fields, and on their return are in as great a hurry to enter the hive. On the outside the entrance is guarded by but few bees, but these are quite able to keep robbers away. Nor are the Caucasians, like other bees, to be seen in large numbers about the entrance of the hive in very hot weather; as they are very industrious it is only natural that they should collect a large quantity of honey. As far as my own experience goes I consider the Caucasian a very good race of bees which deserved to be introduced into Germany; but whether they will stand our winter well and prove satisfactory in every respect the future alone can show.

I will make one more remark. As everybody knows it is no easy

matter for the offspring of a new race of bees to be kept pure. In colonies of other bees, such as Italian hybrid bees are readily recognised by their colour, but this is not so easy in a stock of Caucasian bees. It is therefore to be feared that many stocks may be sold as Caucasian bees which are either hybrids or even entirely degenerated bees; purchasers ought therefore to be on their guard in this respect. —G. DATHE, *Egstrup*.

#### TRADE CATALOGUE RECEIVED.

James Carter & Co., High Holborn, London.—*Catalogue of Farm Seeds*.



**Campanula persicifolia alba** (W. S.).—This plant is quite hardy and thrives admirably in moderately rich garden soil, yielding a profusion of flowers that are extremely useful for cutting.

**The Black Corinth Grape** (H. M.).—This is the variety that produces the Currants of the grocers. It produces insignificant bunches and seedless berries. It requires the heat of a vinery. We do not know where you can procure this Vine, but if any of our readers can supply the information we will readily publish it.

**Gooseberry Bushes Broken with Snow** (J. S., *Cairnie*).—You cannot do better than place stakes to the injured bushes, and secure the branches to them with either strong tarred twine, nearly as thick as the stem of a pipe or the young shoots of willows. Some of the partly broken branches will unite if they are bound up with twine, but others that are much injured will not do so. If they are split near the ground the broken parts after being secured should be covered with soil.

**Double Cinerarias** (J. Butler).—You cannot expect many superior varieties from a packet of seed. The majority of your seedlings will probably be semi-double, while some will probably be single and worthless. Every plant should be grown, as if you pot only the best, throwing away the smaller, you will in all probability destroy just what you hope to obtain. You will find notes on double Cinerarias on page 211.

**Dahlias in Pots** (S. M.).—The dwarf-growing Pompon and Bouquet Dahlias are well adapted for pot culture for conservatory decoration late in the autumn. Rather late-struck cuttings are suitable, and the plants must have generous culture; they need, in fact, similar treatment to that usually accorded to Chrysanthemums, but even richer soil and more copious supplies of water. The pots must be plunged during the summer. We have seen healthy, handsome, and floriferous specimens in 10-inch pots, still larger examples in 12-inch pots, and small attractive plants, struck late, in pots 7 and 8 inches in diameter.

**Peat for Potting** (H. L. O.).—"The surface portion from an Irish bog" would not be the "correct thing." Fibrous peat as understood and used by gardeners is a sharp sandy soil mixed with the dead fibrous roots of heath; it is usually of a dark grey colour, and is very firm or compressed. Peat of the best description is thus constituted of 400 parts:—Fine silicious sand, 156; unaltered vegetable fibre, 2; decomposing vegetable matter, 110; silica (flint), 102; alumina (clay), 16; oxide of iron, 4; soluble vegetable and saline matter, 4; muriate of lime, 4; loss 2.

**The Seven Sisters Rose** (A. H.).—The Grevillea or Seven Sisters Rose is a variety of *Rosa multiflora*, a Japanese species introduced in 1804. The Seven Sisters produces its flowers in large clusters, opening purplish crimson gradually fading to pale rose. It is of vigorous growth, forming a handsome wall or pillar Rose, but is, Mr. Wm. Paul informs us, unfortunately tender.

**Select Pelargoniums** (J. W.).—If you require to stage six plants each of show and fancy varieties you must grow at least nine plants of each section, as you cannot rely on having every plant in exhibition form on a given day. The following are suitable for your purpose. *Show Varieties*.—Cicely, Artist, Purple Gem, Ruth, Prince Leopold, Virgin Queen, Charles Turner, Corsair, and Despot. *Fancy Varieties*.—Ann Page, Ellen Beck, East Lynn, Acme, Lady Mayoress, Mirella, Miss Godard, Mrs. Pope, and Phyllis.

**Good Phloxes** (P. Henshaw).—Twelve good early flowering varieties are Pearl, Mrs. Hunter, Cicerone, Mrs. Shanks, Vulcan, Marquis, Mrs. Morrison, Oberon, Mrs. McLellan, Mrs. Garrett, Mrs. Taylor, W. W. Platt. Good late-flowering varieties are Brilliant, Miss Wallace, Gladstone, David Thomson, Coccinea, Madame Bonneau, Madame Verrier, Princess of Wales, Splendour, Virgo Maria, Walter Ware, York-and-Laneaster. The time of the expansion of the varieties is influenced much by soils and seasons. As a rule if you state the number of plants you require and the purpose for which you need them to a florist you may depend on being well served, as it is evidently to the vendor's interest to give satisfaction to those who trust to his judgment. Plants, too, are usually obtained cheaper than when a purchaser makes his own selection.

**Wormcasts on Lawns** (H. S.).—Place a peck of quicklime in thirty gallons of water, stir well up, and allow it to stand for a few days until it is quite clear; then water the lawn thoroughly with the clear lime water. The worms will come to the surface, when they may be swept up and cleared away. This is an old and useful mode of eradication; but Messrs. Dick Radclyffe & Co. have stated in our columns that if 1 oz. of corrosive sublimate is dissolved in a little hot water and then mixed well in forty gallons of pump water, and applied to the lawn with an ordinary watering can in the evening after a shower, the worms will disappear, and the grass will not suffer any injury.

**Soil for Begonias** (C. D.).—The soil we recommended was the best suited for these plants; whether your "rich black ground" would answer instead of the loam it is impossible for us to say. We can only say that the plants are not very fastidious, and if you are not disposed to purchase a little loam all you can do is to try them in the compost at your command. Possibly they may succeed fairly well with judicious attention as regards watering.

**Heating Power of Saddle Boiler** (Rus.).—You do not give the width



of the boiler inside the arch. The usual sizes of saddle boilers are for 30 inches length, respectively, inside arch 12 inches by 12 inches, which will heat 350 feet of 4-inch piping, and 14 inches by 14 inches, heating 425 feet. These are the full heating power, and can only be obtained by hard firing, which entails great waste of fuel. One-third less piping than the maximum heating power should be allowed for fouling of the boiler surface with soot and economy in working.

**Jasminum Sambac Treatment** (*Idem*).—It requires a good light position in the stove, and where it can have fair ventilation. Being of semi-searant habit it should be trained on a trellis, or may be grown as a bush, affording support with stakes. It does well in fibrous loam, with a fourth of leaf soil and a sprinkling of sand, providing efficient drainage. The soil requires to be kept moist even when at rest, and when in free growth copious supplies of water, being careful not to make the soil sour by unnecessary applications. Sprinkling overhead in the afternoon during summer is highly beneficial. When at rest keep it moderately dry, but not so as to affect the foliage. Thin out the growth after the spring flowering, and train in young growth. Repot after the plant has been thinned and is starting into growth, affording weak liquid manure when the pots are filled with roots.

**Vine Roots Shortened** (*Dubious*).—The two-years-old Vines that have been "dug-up roughly" will no doubt grow very well if you shorten the rods in the same proportion. The "market grower" who sent you the Vines has probably not been in the habit of taking up Vines so carefully as gardeners do with the object of preserving "every bit of fibre." We have seen an extensive grower of Grapes for market deliberately chop off all the roots within 18 inches of the stems of young Vines when planting them, the canes having been previously shortened to about the same length. His object was to secure a great number of strong feeding roots, of which he calculated that each root severed would produce half a dozen or more "like porcupine's quills." The Vines so treated made splendid canes the first year, and eventually produced heavy crops of superior Grapes. If you adopt a similar practice, severing the roots smoothly, allowing no bruised portions, planting in free good soil, and shortening the rods considerably, your Vines will no doubt grow well; but you must allow them to start with a steady moderate temperature; forcing would be prejudicial.

**Sowing Annuals** (*Amateur*).—As you desire to have flowers as early as possible, and have no frame for advancing the plants, you may sow all the varieties of Nemophilas that you name at once, also Virginian Stocks, Veronica syriaca, Clarkias, Venus's Looking-glass, Collinsias, Larkspurs, Dwarf Convolvulus, and Saponarias. All these are sufficiently hardy to pass uninjured through any frosts that will occur now. The seed may be sown where the plants are intended to flower, choosing a fine day for the work. Where the ground works freely, some of the seeds being very small, must only be covered lightly with fine soil, as burying small seeds too deeply often prevents their germination. A very sharp look-out must be kept for slugs, which are greater enemies than frost, and often devour the young plants before the cultivator has seen them. As soon as the plants are growing freely they should be thinned out, as if permitted to be overcrowded in a young state they cannot be rendered satisfactory afterwards.

**Coal Ashes for Heavy Clay** (*E. J.*).—They are a capital dressing, improving the texture, rendering the soil more open and friable, and facilitating the percolation of water through it and admitting air. "Club" is not, unfortunately, due to ashes but to a grub, and mostly results from too frequent growth of the same or allied plants on the same ground.

**Repotting Vines** (*Reader*).—As we told you before, the system of repotting is only a safe one in the hands of experienced cultivators. So far as we can gather from your letters your experience in this branch of gardening is limited, and you had better rely on top-dressings and plunging the pots as you propose. Liquid manure will not be needed until the berries are swelling freely, and must then be given cautiously, commencing with it very weak. Your Vines will soon cease bleeding now they are starting into growth. As soon as you can perceive the bunches you may increase the temperature 5°, and as the flowering period approaches 5° more, at which temperature and a proper atmosphere the fruit will set freely.

**Solanum Capsicastrum Culture** (*T. W. Bushey*).—Seedling plants do not fruit nearly so freely the first year as plants raised from cuttings. All you can do is to pot off the seedlings as soon as they are large enough, growing them quite close to the glass in a warm frame or house until the pots are filled with roots; then shift them, keeping them in the same structure for a week, when they may be placed on a shelf in an intermediate house. In May they may be placed in a cool frame or pit, and towards the end of June be plunged in ashes in a sunny position out of doors. Until this time the shoots must be topped as needed to ensure a dwarf habit, and at all times short-jointed growth must be promoted. The plants must be potted firmly in good loam, especially when placed in their fruiting pots, which may be 5 or 6 inches in diameter. When the pots are filled with roots copious supplies of water are needed, and when the fruit commences swelling soot water is beneficial. Cuttings strike freely at the present time in sandy soil in heat, and make small fruitful plants in the autumn.

**Raising Helichrysums** (*Idem*).—If the seed is sown in heat too early the plants are liable to be drawn. Early in April is usually soon enough for sowing under glass, the plants to be treated the same as Stocks and Asters; or the seed may be sown in rich light soil in a warm position in the open ground towards the end of that month or the first week in May. The first-named plan is perhaps the best if it is properly carried out. Overcrowding the plants in the early stages of growth is the great evil to be avoided.

**Gloxinias** (*F. H.*).—You will find the address you require on page 169, August 28th, 1878, vol. xxxv. You are quite right in your supposition, and we are obliged to you for directing our attention to the omission in question.

**Selection of Ericas** (*Constant Reader*).—The varieties you mention are all useful and handsome; and as you have found them succeed by all means increase the number of plants either by propagation or purchase. The following twelve varieties will be found useful for successional flowering—Erica gracilis vars. autumnalis and vernalis, October to February; E. colorans, October to December; E. melanthera, February to May; E. Lambertiana rosea, December to spring; E. rubrocalyx, March to May; E. McNabiana superba, April and May; E. Cavendishii, May to August; E. ventricosa Bethwelliana, June and summer; E. tricolor splendida, June to September; E. Massoni major, June to August; E. princeps coccinea, August to October; E. Shannoni, August and September. To these add E. hyemalis, perhaps the most useful of all; E. Austriana, E. Marnockiana, E. Paxtoniana, E. Spenceriana, E. tricolor vars. rubra, speciosa, and Wilsoni, with E. vestita alba and rosea, and you will have a very good representative collection.

**Names of Fruits** (*Tillington Rectory*).—1, Golden Winter Pearmain; 2, Sam Young; 3, Winter Marigold; 4, Beauty of Kent; 5, Downton Pippin; 6, not known; 7, Dutch Mignonne.

**Names of Plants** (*G. S. Z.*).—1, Aralia Veitchii; 2, Vinea alba; 3, Euonymus latifolius variegatus; 4, Clerodendron Thomsonae. (*H. B.*).—1, Ceanothus puniceus; 2, Hepatica triloba; 3, Insufficiens; 4, Begonia manicata.

**The Stewarton and Straw Hives** (*G. W. V. M.*).—Mr. James Allen, carpenter, Stewarton, Ayrshire, makes Stewarton hives for sale. Probably Messrs. Neighbour, hive merchants, Regent's Street, London, may have them in stock. Mr. Samuel Yates, 16 and 18, Old Millgate, Manchester, sells all kinds of straw hives, specially the kind recommended in the book you have named.

**Removing Bees** (*James Dunder*).—The best time for removing bees from one garden to another, say a few hundred yards apart, is in the winter months, when bees do not venture far from home, hence the sooner the hive which you have sold to a neighbour of yours is placed in his garden the better. If it is now standing near other hives in your garden there will be some risk of the bees returning to the old place and entering the hive nearest to it. If there is no hive near it now it may be safely removed at once. If you want to avoid all risk send the hive to a distance of a mile or so, and let it remain there for three weeks, and then deliver it to the gentlemen.

**Stocks Destroyed by Mice** (*A. B. C.*).—If you examine the dead bees lying on the floorboards and about the hives you will find that their heads have been eaten off. Last year we sold a hive to a gentleman; the bees swarmed twice, and thus put him in possession of three good stocks. He covered them well up for winter, but omitted to contract their doors. On passing his garden this week we stepped in to examine his stocks and found all destroyed by mice. The bees were lying thick on the boards without heads. Three hives worth 30s. each were lost from want of a little attention. Your bees have been destroyed in the same way.

**Placing Stocks in New Hives** (*F. J.*).—Mr. Cheshire replies as follows to your query:—The risk of bees making a mistake in consequence of a change of colour in their hive depends on circumstances. If several buff hives stood in a row and one of those be suddenly exchanged for a green one, very many of the bees would probably enter the next hives, and queen-encasement would be likely to follow (see Mr. Raitt's article in last issue); but if the hive in question be not very near to others the change of colour would only cause a temporary hesitation on the part of the bees before alighting (and on this account genial weather should be chosen). Position is the great matter, even a difference in height of the alighting board, if of no more than 3 or 4 inches, giving them much perplexity. If we raise it they constantly fly beneath it, and are often much exhausted before they discover the entrance. All difficulty may be overcome by throwing a sack over the old hive two or three days before the change is made, and when the sack has been learnt as a landmark, putting the new hive in the old place and transferring the sack to it. The next day it can be altogether removed. We have found frames across the entrance useful to weak stocks, especially if the doorway be at the end and not the middle of the hive side. The bees keep their brood near the entrance and nestle in the corner, but this is only possible where the hives are excellent as non-conductors. The hives we are using give seven times as much protection as 1-inch pine, and with such, duly contracted, a quarter of a pound of bees may, we have found, be wintered in this country with scarcely a risk. In giving store in comb to help stocks in which the frames are across the entrance care must be taken not to place the new comb next the entrance, or robbing, successful or otherwise, is nearly certain. Strong stocks are rather hindered than helped by this arrangement of combs at any time—that is, that they can fly.

#### COVENT GARDEN MARKET.—MARCH 16.

WE have little or no remarks to make, our market being now at its lowest ebb both with supply and demand. The prices of vegetables are the same as last week.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1/2 sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	1/2 lb.	0 0 0 0	Oranges .....	100	4 0 8 2
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts .....	1/2 lb.	0 0 0 0	dessert .....	dozen	4 0 8 0
Cobs .....	1/2 lb.	2 0 0 0	Pine Apples ....	1/2 lb.	1 0 2 0
Gooseberries ...	1/2 sieve	0 0 0 0	Strawberries ...	per oz.	2 6 0 0
Grapes .....	1/2 lb.	3 0 12 0	Walnuts .....	bushel	0 0 0 0
Lemons .....	1/2 case	12 0 18 0	ditto .....	100	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE MANURING AND IMPROVEMENT OF PASTURE AND PARKLANDS.

(Continued from page 201.)

IN reference to the general management of pastures both feeding and mowing must be considered. We will take the feeding first. It is found that rich and fertile pastures are best adapted for the fattening of oxen, either with or without the aid of extra food. Inferior grass land, however, especially low-lying meadows or other cold clay soils, will usually return most profit by feeding with dairy cows, or by grazing with young cattle intended for the dairy. Hilly pastures, however, are more suited to sheep, especially if the soil is thin and weak, like much of the chalky,

sandy, and limestone soils. The best pastures should never be fed too bare, because the stems and blades of grass and Clover have both the power of drawing some nourishment from the atmosphere by the absorption of ammonia supplied by the rain and summer air. On the other hand if early highly succulent grasses are allowed to become too bulky they will be coarse, and will dominate the finer herbage, such as the white and yellow Clovers; at the same time also much of the produce will be refused by the cattle, and left to prejudice the aftermath. The ordinary meadow land is best suited for the grazing of dairy cattle, and cannot well be fed too closely, but especially the irrigated meadows, as these throw up such a quick succession of grass that it requires a heavy stock to keep the food in condition.

To return to the feeding of rich pastures, it is a common practice to feed with sheep as well as bullocks, in the proportion of one or two sheep to one bullock. The long-woolled sheep should be selected as companions for the cattle, for they are of a quiet contented habit; but the downs and crossbreds are more of a roaming disposition, especially the two former breeds, and, treading the grass under foot they make it distasteful both for the bullocks and themselves. In the autumn, where grass has been fed off either by cattle or sheep, if any tufts are left they should be mown down with the scythe, especially where dairy cows are grazing, for the seed heads of the grass frequently produce ergot, which causes abortion. If, however, it is determined to feed down the rejected tufts of grass it may be done by horses and colts in the absence of the dairy stock, as both horses and cows always benefit by change instead of feeding together.

We now must approach the question of mowing grass land for hay, and before making our own practical remarks we will quote Mr. Lawes upon the subject. He states, "If however, instead of accumulating a capital of fertility in the soil, a good crop of hay were the object to be attained, then the rapidly acting nitrates would be the best and cheapest application; for to produce an immediate effect, whether it be to grow a crop of hay or to force on a crop of roots, artificial manures are to be preferred to all other substances; but if the object be to increase the permanent stock of fertility in the land, then it would appear that feeding with cotton cake or the use of purchased dung would meet this requirement at a lower cost." Strictly, in accordance with Mr. Lawes' statement we had an instance on a home farm a few years ago which we had in hand, consisting of 300 acres, half arable and half pasture. The land was in as low a state as possible, and naturally poor. The pasture grass was nearly all destroyed by close feeding in summer and winter. In consequence we determined to use only the artificial manures on the arable land; and the yard, stable, and purchased dung, with earthy compounds from roadsides and ditches, upon the pastures and parklands, sowing some renovating seeds. The result was that at the end of three years both arable and pasture land was so much improved that the letting value was greatly increased. No hay was cut from the pastures, the arable land being made to furnish all the hay and straw required for a stock, which was proportionably diminished in the winter months.

Mr. Lawes writes as follows upon the value and effect of certain manures and feeding stuffs:—"1, The manure from a ton of decorticated cotton cake consumed on the land would contain, I should estimate, the following quantities of the three most important ingredients of plant growth:—Nitrogen, 130 lbs.; phosphate of lime, 149 lbs.; potash, 70 lbs. 2, Of the farmyard manures it would be necessary to apply about 11 tons in order to supply the above quantity of nitrogen, while the amount of phosphate of lime and potash taken together would not differ much from that contained in the cotton cake; but in the dung the potash would be greatly in excess of the phosphate of lime, while in the manure from cotton cake the phosphate of lime would be in excess of the potash. 3, Of artificial manures it would take  $7\frac{1}{2}$  cwt. of nitrate of soda, 5 cwt. of superphosphate, and 5 cwt. of kainit salts to supply the amount of nitrogen, phosphoric acid, and potash contained in the manure from a ton of cotton cake. I have used cotton cake since its first importation. I do not propose on this occasion to take the estimate founded on experiments carried out at Rothamstead; I will merely assume that its value per pound cannot be less than that of the mixed dry food, consisting of hay, roots, and corn, of which it took from 12 to 13 lbs. to produce 1 lb. increase of live weight; this would be equal to an increase of 187 lbs. per ton, and valuing live weight at 5d. per pound we have £3 18s. to deduct from the price of the cotton cake, and leaving the cost of the manure as £3 12s. Cotton cake therefore, even at the low meat-producing standard here assigned, would thus supply the cheapest manure, and artificial manure the dearest." In the foregoing statement we have the cost and value of manures and residue of feeding stuffs compared in a plain and practical manner, and our

own experience will not enable us to take exception to it. Pastures, when continually mown for hay, require very different manuring to those which are constantly fed by stock; and it must here be noticed that a disregard of these distinctions has in numerous cases been the cause of great disappointment in the result arising from the use of bones for pasture land. Mr. Lawes says, "Now the amount of potash taken up in the animal body by grazing is exceedingly small, while the phosphate of lime so taken up is comparatively large. The effect of mowing a pasture, therefore, is to reduce the potash faster than the phosphate, while the effect of feeding a pasture is exactly the reverse; and this being the case it is evident that bones, which contain a large proportion of phosphates and but little or no potash, cannot be an efficacious manure for grass land which is mown for hay." This statement at once explains in the clearest manner why the application of bones has been so successful in Cheshire, because the far greatest portion of the strong land pastures in that county are fed by dairy cows, and therefore reducing the phosphate of lime in the soil; on the other hand the manuring with manures containing potash are of little avail, because the strong clay soils contain so much of it in their actual composition.

It has often been recommended that grass land should be mown and fed by stock alternately. As a rule, however, mowing for hay encourages the coarser grasses to the detriment and exclusion of the finer herbage, particularly that of white Clover and yellow Suckling. There ought to be a distinction between valuable grazing land on the richest alluvial soils and the cold damp meadows of ordinary value. In the latter case mowing may be called a necessity, because a good crop of hay is the most profitable produce. On the other hand, we must consider the advantage of grazing the most fertile pastures, which often feed and fatten an ox and one or two sheep per acre; whereas mowing for a crop of hay on such land, irrespective of risk in making, has a direct tendency to injure the best and choicest herbage. Again, in newly-formed grass land it is much better grazed if we wish to form an early and permanent turf; for, although we may manure with liberality, yet cutting the grass for hay is sure to weaken if not destroy the bottom grass so essential in forming a good pasture. To conclude, we must return to artificial manure for top-dressing grass land and Clovers, and we cannot omit to notice the value of gypsum, which is composed of a combination of lime, sulphuric acid, and water as follows:—32.56 per cent. of lime, 46.51 per cent. of dry sulphuric acid, 20.93 of water, total 100.00; so that in every 100 lbs. of gypsum there exists 46½ lbs. of dry sulphuric acid—equal to 56 lbs. of the strongest liquid acid that can be purchased, and putting this at the low rate of 4d. per pound it is an astounding fact that the same quantity of sulphuric acid that you have in 1 ton of gypsum would cost to purchase no less a sum than £21. It is considered that gypsum has but little effect when applied to crops growing on wet clays and chalky soils. It is, however, contended that to obtain the full effect at any time it should be used in the finest powdered state, and sown upon vegetation after rain, when it will adhere to the leaves and stems of plants.

#### WORK ON THE HOME FARM.

*Horse Labour.*—The true economy of this is not only obtained by good feeding and judicious management in the field, but also by the use of animals of not less than 16 or 16½ hands in height, with substance in proportion. Two such animals, if in full condition will be capable of turning a single furrow in nearly all fallow ploughing, except the heaviest clays, and also of drawing with ease the double furrow plough in all the summer ploughings where the land has been once moved either by the plough or scarifier, and when thus used no driver will be required at any time, which certainly constitutes economy worth the attention of the home farmer. The next matter of economy is the use of the steam cultivator on all lands which have been winter-ploughed, not only for the purpose of saving time, but also in order to ease the horses of some of the severest labour on the farm. We must next refer to the feeding of horses, for we advocate the use of a moderate quantity of roots with the corn and dry fodder, whether of hay or straw, and as the Turnips are for the most part decayed by the frost, it will be well to commence feeding with Mangolds. The roots may be given whole in the manger, but should be spread out on a barn floor or mow for ten or twelve days before use; this will make them more wholesome at this early period, as they would otherwise be to some extent unripe and watery. The quantity may be about 10 or 12 lbs. of roots per horse per day; and our reason for giving the roots whole, and just as they come from the store without cleaning, is because the horses will not eat them so fast as when cut or pulped. If, however, the roots are given pulped it should be in admixture with hay or straw chaff. The horse labour now to be done will be Barley and Oat sowing, and if malting Barley is required the earlier in March the seed is sown the better. After roots are fed off by sheep we prefer to sow dreges, as we obtain good horse corn from this mixture, and grow more in weight and measure than can be grown from Oats alone.



The sowing of Clovers and grass seeds may now be done immediately after the sowing of the corn. If, however, grass seeds for permanent pasture are to be sown in the corn, we advise the home farmer to think over this matter with great care before he undertakes to lay much land now in arable into permanent pasture. Although at the present time corn sells at a low price we are by no means sure that this will last long enough to make it preferable. We have written much lately upon the question of laying land into permanent pasture, and its manuring and after treatment, yet when considering the work and cropping of the home farm we should ask ourselves the question whether we may not obtain nearly all the advantage we can expect from feeding a larger quantity of grass land without converting it into permanent pasture. Let us consider seriously whether our object of obtaining more grazing land cannot be obtained by a course of cropping whereby the land, having been seeded with permanent grasses, including Clover and Saintfoin, may not with benefit be fed for two or three years, and then fall into rotation for the growing of corn, &c., as before. Before deciding upon a matter of so much consequence in the future, we will suppose that a large area of our arable land has been converted into permanent pasture, and times may occur again in which corn and pulse will be dear. Circumstances we can neither foresee or control may occasion this, such as bad crops in America and other States whence we receive our supplies of grain, or from wars which may interfere with commerce. If we, then, had our two or three-year-old leas to deal with as arable land we should be in a better position to avail ourselves of an altered state of corn prices than after having disposed of so much of our arable land by converting it into grass for a permanency.

**Hand Labour.**—Shepherds and cattle-men will now often require some assistance from other men on the farm, unless women are found as constant workers, as they always used to be, and may be now with advantage to the farmer, in connection with preparing roots for stock. The breeding flocks will this year lose the greens of the Swedes in many instances; and as these are always made use of in feeding the stock lambs, the substitute now must be trough food, and similar to that which we have always recommended for feeding lambs for the fat markets—namely, the lambs to run forward into a fold without any greens or anything but trough food, which should be Swedes as long as they will continue in feeding condition. Cut and pass them through Gardener's cutter twice, and then mix them with cake and corn both in meal, so that it may adhere to the cut roots. In this way the lambs are sure to do well, except when we commence feeding with Mangolds, which is dangerous food for lambs. For many years we suffered greatly by losses of our fattening wether lambs by stoppage of urine whilst eating Mangolds; but the ewe lambs do well. It is not, however, found that lambs in store condition will suffer to the same extent as fattening lambs. Now is the time to obtain a good supply of calves for suckling as veal, for on the cheese-making farms they will be disposed of at a moderate price. Hereford and Devon calves we like best for making veal. The Shorthorn calves will grow and make as much weight but not the quality. In a suckling dairy, which pays well where farmers are not situated with the full advantage for the sale of milk, Shorthorn cows may be kept and should calve early, being fed well upon roots and cake, so that their own calves may be sold about this time and then be ready to take the full number of purchased calves. As they will at such a time be cheap and plentiful, we put two to each cow for a time, and by feeding the calves with balls of cakemeal at first, and afterwards with cake, malt, or maize meal in troughs. This will carry them on for a long time, two to a cow whilst in full milk, and the calves will be of a capital quality both in fat and colour. The yearling and two-year-old heifers will now be depending much upon Mangold and straw or inferior hay. The home farmer will this year learn the full value of Mangold, as the Swedes are nearly all decayed; in fact, Mangold is like money, you can never have too much if you only know how to spend it.

#### VARIETIES.

**MR. PETTIGREW'S FUTURE ADDRESS.**—Owing to the great number of visitors and letters I receive from all parts of the country, it seems desirable that it should be widely known that I am about to leave Sale; that on and after the 24th of this month my address will be Peel Crescent, Bowdon, Cheshire. But my connection with the nursery at Sale will remain till the end of May, or till my plants are sold. It is my intention to go to Scotland for three months—June, July, and August—to seek health, and if I find it to return to Bowdon, and there establish an apiary for my own advantage and incidentally for the advantage of all bee-keepers. It will be a bee farm managed to the best of my ability. An account of it, including income and expenses, will be given annually to the public.—A. PETTIGREW.

**FISH AS FOOD FOR FOWLS.**—We have recently heard from a poultry fancier that he has for some time been giving refuse fish, such as the heads, &c., to his birds, and that he has found this effect

a great improvement in their laying. The fish scraps are boiled and then mixed with meal of some kind. If any of our readers have the opportunity of getting fish refuse cheaply it may be worth their while to give the matter a trial. Fish undoubtedly contains much that is necessary for egg-production, and we are assured that the taste of the eggs is in no way affected by the feeding.

**THE HOG TRADE IN AMERICA.**—The hog production of the country, now mostly confined to the corn-producing States of the west, is, says the *American Cultivator*, larger than ever before known in the history of the business; while the exports of hog product on a large scale show a gain over the corresponding time last year. Since the 1st of November, for instance, the movement of meats, including barrelled pork, has reached the enormous number of 260,000,000 lbs., or 50,000,000 lbs. more than the same period last year; and lard exports have reached 105,000,000 lbs., or 20,000,000 pounds more than last year, the aggregate product amounting to 365,000,000 lbs., against 300,000,000 lbs., equivalent to the product of about 360,000 hogs.

**MANAGEMENT OF FARM MACHINERY.**—All farmers now-a-days use more or less of machinery, and necessarily learn much of its working and management; but they learn for the most part only in the slow and dear school of experience. The elements of physics—of natural philosophy—should be part of the common school course in all rural districts, and time for the study could easily be gained by devoting less to useless extravagances—the impractical extensions of arithmetical puzzles and of algebra. As to the wearing away of bearings—causing uneven, jerky motion, hard for the horses and damaging to the machine—we can only advise the application of oil wherever there is friction, frequent in proportion to the rapidity of the movement, with all possible care to prevent sandy dust from entering to grind away the surfaces. Farm machinery is especially exposed to this source of injury, and it is for farmers themselves to invent or select and apply means of protection. The manufacturers' care ends when they have put a smoothly running effective machine into the farmer's field, and got the money for it. Their interest after that is naturally heaviest on the side of wear and tear. Every person venturing on the use of a machine, from an Apple-parer to a grain-binder, should study it so thoroughly as to be familiar with every part, and with the reasons for their particular shape, size, and adjustment. He will then know what to avoid while it works well, and what to do if it shows symptoms of disorder or ill-function.—(*New York Tribune*.)

**EXPERIMENTS IN POTATO GROWING.**—An important series of experiments were conducted last season by Mr. James A. Gordon of Arabella, Ross-shire, Scotland, with the view of ascertaining the disease-resisting power and the productive properties of the following varieties of Potatoes:—Champion, New Victoria, Suttons' Magnum Bonum, and Suttons' Reading Abbey. The land was as nearly as possible equally manured, and the yield was as follows:—

No. 1, Champion .....	13 tons 2 cwt. per acre.
No. 2, New Victoria .....	12 " 1 cwt. "
No. 3, Suttons' Magnum Bonum .....	9 " 2 cwt. "
No. 4, Suttons' Reading Abbey .....	4 " 13 cwt. "

All were planted in the end of March in drills 32 inches wide. No. 1 came away most vigorously, and had very large shaws, which, overlying Nos. 2 and 3 on either side, perhaps slightly reduced their yield. No. 3 had also rank stems and promised a large crop. In No. 2 there was less growth of shaw, and still less in No. 4, which never gave promise of a heavy yield. In No. 4 black spots were observed on the shaws about the middle of August, and by the end of that month they were nearly all black. Black spots were seen on No. 3 about the 24th of September; but, though the leaves became black, the stems remained green. Nos. 1 and 2 also showed a few small spots on the leaves about this time, but on the whole they retained their green hue very well till lifted on the 8th of October. In No. 1 a good deal of disease was found among the tubers. About 10 per cent. had spots on them, and about one-half would be marketable, the remainder being undersized or diseased. Of No. 2 about three-fourths were fit for the market, and only a trace was seen on this variety. The condition of the tubers in Nos. 3 and 4 was similar to that of No. 2. All were of good quality, Nos. 2 and 4 being the best when cooked, as well as the best shaped. No. 1 showed a slight black-



ness at the end. Of his New Victoria variety Mr. Gordon had forty acres, which yielded an average of over ten tons per acre.—(*Irish Farmers' Gazette*.)

## POULTRY AND PIGEONS

### THE COURTE PATTE.

It would be difficult to find a better illustration of the little regard which is paid in France to what we call "fancy points" than the fact that the two leading French poultry books give entirely different descriptions of the Courte Patte.

In *Le Poulailleur* M. Jacque classes the Courtes Pattes with the Bantams. He says that in many localities in Brittany, Sarthe, and Orne there are Courtes Pattes, but that the true breed, which was formerly common in Orne, and from which was derived the delicious and precocious fowls called *Poulets à la Reine* is almost lost. He claims, however, to have recovered it, and describes it as follows:—"The cock weighs about 3 lbs. 3 ozs., the hen about 2 lbs. 2 ozs.; both are so short in leg and low in carriage that they waddle like Ducks, and that their fluff lies on and trains along the ground in spite of all their efforts to raise themselves on their legs. The comb of the cock is double, and has a small crest behind it. The plumage is throughout a mixture of white and dense black, with the exception of the tail, which is bronze black; the sickles are long and ample, the feet are black.

"The hen is extremely like the cock, and her very long tail forms a strange contrast with her legs, which are so short as to be almost invisible.

"This species lays very well and sits admirably. It furnishes us with excellent little birds which come early to maturity, and which were in former times much esteemed, and destined for the tables of the rich in the spring season when most fowls are not very tender."

The above account differs very materially from that given by M. Lemoine in his poultry book. He says, "This bird is of medium size and of a very rustic type; its flesh is of good quality; it is a very good layer, and a good but not an early sitter; its plumage is uniformly black; it has white earlobes and long wattles; it stands very low on its feet, which are large and black. The cock has a large single comb, which is upright and serrated."

Here, then, we have the two leading French authorities upon poultry matters giving us widely divergent accounts of what each calls the Courte Patte breed. We presume that M. Jacque had seen birds of the colour he describes with double combs and small crests, but there is no doubt as to these points the description given by M. Lemoine is that accepted both in France and in this country. At the recent Paris Exhibition the breed was numerous represented, and it has of late been shown pretty frequently in the Variety classes at English shows. We have in our own yards had some little experience in the breed with birds which we imported a year ago and a few chickens bred from them.

One of the descriptions above given is inaccurate, and the other is very meagre, while the account given of the economic qualities hardly corresponds with our experience; we therefore propose to shortly describe the breed as we have seen it and found it. We took some pains at the Crystal Palace Show to ascertain more fully the views of M. Lemoine, whom we had the pleasure of meeting there, and we also especially noted and inquired into the points of the breed at the Paris Show.

First, then, as to size. Our birds weigh from  $4\frac{1}{2}$  lbs. to 3 lbs., and are by no means as large as the winning cock at Paris, which we should think would easily have scaled 6 lbs. This bird was, however, considerably larger than any other at the Show, so that we may fairly, we think, place the weights at about 5 lbs. for cocks and  $3\frac{1}{2}$  lbs. for hens. The shape and carriage are unique, and are, of course, materially affected by the short legs, from which the name is derived. In a good specimen one is struck equally with the extreme shortness of the legs and the great length of the body. In no other breed that we are acquainted with is the length of the body so great as compared with its depth, while the carriage is more like that of a Duck than a hen. The legs are so short that the ample plumage almost touches the ground, and the body is carried so horizontally that the breast is nearly as close to the ground as the fluff is. The breast is full and the back almost level, so that the bird has the appearance of being very solid. An upright carriage or any shortness of body is a great defect. The plumage is very ample and fairly close, and is black with brilliant green and purple metallic reflections. The

tail is large, and should be carried perpendicularly. The comb of the cock is single, of moderate size, evenly serrated, and erect; that of the hen droops to one side. The face and wattles are red. The earlobe should be white and smooth, but this point appears to be very difficult to attain, especially with the cocks. We have only seen one cock with an earlobe which could be called white, and we fear this will prove a great stumblingblock in the way of the breed here. At the Paris Show the one bird above referred to was first in the French Any other variety class; while second went to a bird good in other respects, but with very red earlobes. We trust the Judges here will show a similarly indulgent spirit in this respect, at least for a time. The feet, as also the legs, are black, and should be free from feathers. The feet look large in consequence of the legs being so short, but they are really rather small than otherwise. We regard feathers on the legs as a great defect. They indicate a cross with some feather-legged variety, and should be mercilessly repressed.

So much for appearances, now as to the qualities and habits of the breed. We find them moderately good layers of eggs, which are very large for the size of the birds, and are much like those of a Spanish hen. They are good sitters, and the shortness of their legs adapts them especially for rearing chickens of the more delicate varieties. The old birds seem hardy, but we have found the chickens difficult to rear, especially early in the season. We have not been able to spare any for the table, but from the peculiar conformation of their breasts, which are much flatter than those of any other variety, we consider them specially suitable for the table where great size is not desired. They develop with fair rapidity. When they have become acclimatised we expect better results from them both in regard to laying and rearing the chicks than we have yet attained.

We have seen it stated that they are non-flyers, and as easily kept in as Asiatics, but this is quite a mistake. Even the old birds will cross a 6-foot fence, while the youngsters are quite as light on the wing as any breed we are acquainted with. The cocks are very lively and have a jaunty air about them which is very attractive—they seem to be brimming over with conceit. We have not much tested their powers of bearing confinement, but think they will stand it fairly well.

We have no doubt that the breed is, as stated by M. Jacque, of very ancient origin. It has the merit of having very distinct characteristics which are well established, and there is a certain amount of quaint beauty in it which with its useful qualities should recommend it to English fanciers.

### THE MODERN DORKING.

THERE is a controversy which from time to time is waged among poultry fanciers. For some weeks it is briskly carried on in print, then it slumbers and dies a natural death; after a time it is revived and carried on with all its own animation, sometimes one might almost say aerimony. The great question is whether the modern Dorking is superior or inferior to the Dorking of thirty or forty years ago. I do not say "great question" ironically, for as the Dorking is *par excellence* the table fowl of England it is a question of some importance whether a bird which should grace every banquet is not kept up to a due standard of excellence. Though this breed has long been my *spécialité* in poultry I have never taken much part in these controversies, and so venture now to collect my ideas upon the subject, in the hope that, if not instructive to any fancier, they may at least be impartial. I am the more inclined to hope that they may so be from the fact that I do not find myself entirely in agreement with either the one or the other side. The exception to my silence has been when some three years ago I craved space in your columns, as well as in those of one of your contemporaries, for a few lines on the "modern Dorking." Unfortunately there are, or have been, now and then changes of fashion as to the desired characteristics of poultry. Just then at the Crystal Palace and other great shows nearly all the prizes had been given, and that by some of our best all-round judges, to Dorking cocks with immoderately long legs, presumably because they were heavy in hand. There was then a general outcry, in which I joined, from all the principal Dorking breeders against these awards. This expression of opinion had its desired effect, and since then there has been, as far as I have seen, a general return of favour to the older and more approved Dorking type.

The controversy at present seems rather to be, not over this or that type of Dorking as now generally exhibited, but between on the one side the really old fanciers who hardly exhibit at all now, and who maintain that they formerly possessed a race of Dorkings, now nearly extinct, but in all useful qualities superior to the present Dorking; and on the other side the admirers of the

modern Dorking, which they believe to be in some points an improved fowl, and if a good specimen be taken, in all ways equal to any Dorking ever produced. The difference of opinion seems reduceable to these heads—1st, The form and size of the breed; 2nd, The colour; 3rd, The feet; 4th, The ears. On some of them the difference is certainly merely one of the degree of weight to be given to certain merits and defects. I will, if I may, briefly give my humble opinion on each of them. I have not the advantage of the years of some of the great authorities on the subject, though I hope that a very careful observation of poultry from six years of age, specially the Dorkings in the old-fashioned farms of Middlesex and Surrey, may in some degree compensate for this disadvantage.

1, *Form and Size*.—There can, I think, be little doubt that in size the breed has appreciably advanced within the last twenty years. The records of the weights of the prize birds at Birmingham when they were judged chiefly by weight, and when consequently exhibitors fattened their show birds far more than they do at present, will prove this; but then, has this size been obtained at the loss of some form? I think, taking the Dorkings all round at one of our great shows, that it has. There are always to be found a number of leggy ungainly birds not suited to the table. I do not, however, see any necessary connection between this general increase of size and deterioration of form in some specimens. There are always birds to be found of great weight and size with the true Dorking shortness of leg and roundness of breast. The number of leggy birds still to be seen is, I fancy, due to the unfortunate favour shown to such, as I have said, a few years ago. Harm was done, too, by the saying of a once great breeder of Dorkings that a short-legged bird could never have a frame to carry much flesh. That idea is now quite exploded, and many of us—nothing daunted by being for two or three seasons beaten in the show pen by birds which we knew were, as Dorkings, inferior to our own—have stuck pertinaciously to the old form, and have been rewarded for it. Certainly I can never remember seeing more perfect Dorkings in form than many of the winners at the great shows of the past season. It is quite true, as I have said, that leggy bad birds were to be found, but seldom in the prize pen. Some breeders have not disposed of the strains which to the great regret of real Dorking fanciers won for a time, and will, I fear, find it difficult to do so without a general slaughter and a fresh start.

2, *Colour*.—Here I think harm has been done, and that almost entirely in the case of the Dark variety, by the arbitrary requirement that the hens should be of an almost uniform shade of rich brown with black neck hackle. Nothing is so fatal to the utility, as apart from the fancy beauty of a race, as the requirement that cocks and hens shall respectively have markings or colour not obtainable generally from the same parents. The colour which has of late been fashionable for Dark Dorking hens is one which frequently, at least in my opinion, produces many nearly black cockerels, and thereby shows that it has been obtained by some cross. I do not say that this is always so, for some years ago I obtained two pullets—not large, but models of Dorking shape, with perfectly white feet—descended from an old Dorking race; they were of the favourite dark brown colour, and yet never produced a too dark cockerel; indeed, when the son of one of them took the cockerel cup at the Crystal Palace the only fault found with him was the lightness of his hackle. What I disagree with is not admiration of this rich colour in the hens, but the exclusion of all other colours, even when combined with size and other excellence. There is a lighter type of hen, certainly not quite so handsome, in which the tips of the feathers are of a darker shade than the rest of them; sometimes this darker marking approaches lacing, sometimes spangling. I have almost invariably found this colour to accompany great size and white feet, and to go with handsome moderately dark plumage in the cocks; it was formerly often seen in the show pen, but of late has been somewhat tabooed by judges, and most unfortunately so I think. During last season I occasionally showed a very fine pullet of this type, but she never received more than a “very high commendation;” while one at least 1½ lb. lighter, but of the favourite brown hue, took the highest honours. In the case of the Silver-Grey variety there is some difference, for it is confessedly to some extent a breed of feather; however, I have usually found with it, contrary to one’s experience in many breeds, that the most approved form and colour go together.

3, *The Colour of Feet*.—Of course no one wishes or likes to see a dark foot on a Dorking; the question is, Is the prevalent inclination to darkness to be tolerated in very fine specimens, or must it be stamped out? Here, I think, the old fanciers have the best of the controversy. There has of late years certainly been a great increase of “sooty feet.” I was perfectly astonished when judging

not long ago at a great Scotch show to see the number of otherwise excellent birds failing in this point. What the cause of it is I do not pretend to decide; some say breeding for very dark plumage. I formerly thought this, but why, then, is it quite as bad in Silver-Greys as in Darks? I am inclined to attribute it to crosses, for I have observed it as specially bad in one strain of Silver-Greys which was long famous for very silvery cocks and pale-breasted hens, and which I am sure had Silver Duckwing blood in it. Dark marks are a great blemish on a leg supposed to be white both in the poultry yard and on the table. I have found them more prevalent in birds inclined to be leggy than in those of true Dorking form; for these reasons I think they ought to be vigorously excluded from the prize pen and the breeding yard alike. It is sometimes said that this is a merely fancy point. This argument falls to the ground if there can, as I believe there can, be shown to be some connection between purity of a race which has always been known as a most palatable one and whiteness of feet.

4, *Colour of Ears*.—For some years most Dark Dorkings had red ears, and little was said about the point. Of late some of the best specimens have shown some white in the deaf ear. Great objection has by some fanciers been raised to this as a proof of a cross with Minorcas or other white-eared breed. This I doubt, for I observe that white in ear generally goes with good Dorking form, and I can remember, too, that the old farmyard Dorking almost invariably had some white in ear; indeed, one of our ablest judges tells me that he remembers it being considered a point of purity, and Mr. Harrison Weir’s well-known illustration confirms this view. In my own yards I shall certainly not exclude a white-eared bird when otherwise good, nor do I see any reason for looking upon it in moderation as a drawback in a show pen.

Such roughly are my ideas upon the relative merits of the older and newer Dorkings. I give them for what they are worth and do not dogmatise, but shall be only too glad to hear and consider the opinions of others of your readers on the subject. Looking at the Dorking all round I fear we have lost something in plumpness and smallness of bone; on the other hand we have gained size and greater hardiness, and I believe that by the present careful selection carried on by several enthusiastic fanciers we are likely to combine the excellencies of the old and new birds. In one point my own experience is that we have gained and are gaining much—that is, “bumble feet” are much on the decrease. This I attribute to a requirement which some may call absurd and arbitrary—viz., that the fifth claw should be turned up and well separated from the fourth. There is, however, reason in it, and I well remember that when the two hind claws were frequently set close together or confused, or even had the abnormal addition of a third, inflammation and disease in the feet were far more common than I ever find them now.—O. E. CRESSWELL.

### OUR LETTER BOX.

**Himalayan Rabbit Skins.**—A correspondent desires to know where he can dispose of the skins of Himalayan Rabbits to the best advantage, and will be glad if any of our readers can supply the information.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. March.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	6	29.426	50.8	47.2	S.W.	40.6	57.6	46.8	91.2	42.3	0.036	
Mon.	7	29.312	54.3	51.0	S.E.	42.7	59.3	51.3	100.6	48.4	0.218	
Tues.	8	29.617	46.7	43.7	N.E.	43.4	50.7	44.4	94.6	41.3	0.124	
Wed.	9	29.876	49.0	48.0	S.W.	44.5	53.8	39.7	65.1	35.3	—	
Thurs.	10	30.038	51.6	49.6	W.	43.6	58.7	47.2	94.0	47.6	—	
Friday	11	30.072	49.4	47.2	W.	41.9	58.3	46.4	103.8	42.3	—	
Satur.	12	30.006	41.7	41.7	W.	45.0	55.1	39.4	79.3	36.3	—	
Means.		29.764	49.1	46.9		43.3	56.2	45.0	89.8	41.9	0.378	

### REMARKS.

6th.—Fine and warm with bright sunshine; rain in evening.  
 7th.—Showery, and high wind; bright hot sun at intervals.  
 8th.—Showery with bright sunshine at intervals; starlight evening; lunar halo 10.45 P.M.  
 9th.—Morning showery; afternoon and evening fine.  
 10th.—Fine with bright sunshine during the morning, afternoon overcast; fair all day.  
 11th.—Very fine; bright sunshine all day; lunar halo 10.15 P.M.  
 12th.—Thick fog in morning, overcast throughout.  
 Temperature much higher, several degrees above the average, and about equal to that usual in the first week in May.—G. J. SYMONS.



24th	TH	Royal Society at 4.30 P.M.
25th	F	Quekett Club at 8 P.M.
26th	S	Royal Botanic Society at 3.45 P.M.
27th	SUN	4TH SUNDAY IN LENT.
28th	M	Royal Geographical Society at 8.30 P.M.
29th	TU	
30th	W	Royal Botanic Society—First Spring Show.

## CULTURAL NOTES ON PRIMULA SINENSIS.

GARDENERS and amateurs have often told me that their *Primula* seed does not germinate freely, and more frequently than otherwise they blame the vendor for selling bad seed, when the sower is often in fault. We are all liable to overlook small matters; and as success depends in a great measure on such, a few notes upon *Primula* culture will be seasonable and useful.

If *Primulas* are required to flower in the winter, March and April are the best months to sow the seed; if wanted in bloom in March and April, sow in May and June. Whether sown in pots, pans, or boxes these should be well drained with broken potsherds, covering them with the rough siftings from the soil, filling-up with fine soil within an inch of the rim. Place the pans on a level surface, and give a good watering sufficient to moisten the whole of the soil; in about an hour the pans will be ready to receive the seed. This should be spread evenly over the surface, and covered lightly with fine soil. Do not give any water after the seed is sown, but cover the pans with a piece of paper; and if the soil is likely to become too dry before the seed has germinated, sprinkle some water on the paper occasionally. Dryness of the soil while the seed is germinating is, I believe, often the cause of failure. The pan can be placed in a warm vinery, or any other house or pit where the temperature is kept to about 55° or 60°. When the seedlings are appearing through the soil the paper should be removed and the pan placed in a light warm place and shaded from bright sun, never allowing the soil to become dry. As soon as the young plants have two or three leaves they should be pricked off about 2 inches apart into pans or boxes. I prefer this plan, as the plants make roots faster than when at first placed in small pots. The pans should be still kept in a rather warm position until the plants touch each other, when they should be potted into large 60-size pots. As the weather will be warmer by this time, a cold frame kept rather close at first will be the best place for them until the end of September, when they should be moved to a greenhouse or pit heated sufficiently to exclude frost. If allowed to remain in a cold frame a covering should be employed every night, as they will not be safe from frost after the time named. As soon as the small pots are full of roots the plants should be potted into 48 or 32-sized pots, and again shifted, if large specimens are required, into 24's. I do not recommend overpotting, as the plants will flower better and be less liable to damp off in pots of moderate size. Be careful in watering at all times, and never allow the plants to flag. Should flower spikes be produced before they are required, pinch them out

during the summer months, and be careful to shade from bright sunshine from 11 A.M. till 3 P.M., unless the frame is placed in a shady position.

A suitable soil for potting may be prepared by mixing together one-third of turfy loam and one-third each of well-decayed leaf soil and manure, with a portion of silver sand and a little charcoal or soot. Should there be one or two plants of a superior quality and distinct from the rest, these should be placed on a shelf for seed and be carefully fertilised. If green fly appear fumigate with tobacco or tobacco paper.

As the double varieties do not produce seed freely, these should be increased by cuttings; or a safer way is, after the plants have flowered to remove the lower leaves from each crown, pegging the growths down a little towards the edge of the pot, and filling up with a little fine sandy soil, covering the whole of the soil with sphagnum moss or cocoa-nut fibre refuse. Place the plants in a warm house or pit, and keep them well supplied with water. In about six weeks the layers will be rooted, and should be cut off below the new soil and be placed in small pots, still keeping them in a warm position until well established, when they can be removed to a cold frame and treated like the single varieties. The old Double White (*Alba plena*) is the most useful of these, but it should be kept in a warmer temperature than the other varieties during the winter. I do not recommend any particular varieties, either single or double, as almost every seedsman has his own strain, and, I think, can generally be depended on, although there are some handsome named varieties in commerce at the present time.—JAMES CHILD, *Garbrand Hall*.

## GARDENING AT LONGLEAT.

AN observant visitor to Longleat will at once perceive that what Mr. Taylor, the clever gardener in charge, considers worth growing at all is worth growing well. This applies to the garden generally, including more especially fruit, vegetables, and flowers. Only what have proved profitable and of exceptional merit are retained, and of no kind do we see a great variety. In this respect a valuable lesson is taught those who are constantly craving for variety, the said "variety" not infrequently including many sorts which, if not absolutely worthless, are at all events unprofitable, especially where the demand or the resources of the garden, as at Longleat, are exceptionally heavy. We do not go so far as to say Mr. Taylor's selections are infallible, as what may be found most serviceable and which succeeds admirably with him may either be uncalled for, or probably may not succeed in the next district even. What we wish to impress on our readers, private enthusiasts excepted, is the advisability of growing a limited number of varieties of known excellence in great numbers in preference to an equal number of plants in many varieties, some of which are of doubtful merit.

Perpetual-flowering Carnations are in great favour at Longleat. To meet the demand large numbers of healthy floriferous plants are grown which probably are unequalled in any private establishment in this country. The chief variety is the Belle Rose, and a bright "beautiful Rose" it undoubtedly is, and should be found in every establishment where buttonhole flowers are in request. A good white companion for the Belle Rose is Purity, though it is scarcely so vigorous and floriferous. Both are clove-scented, the latter strikingly so. A stock of Miss Jolliffe is being worked up, a variety probably the most easily



grown of any. It is very free-flowering, but scarcely so sweetly scented as the foregoing; colour pale flesh. *Souvenir de Malmaison* is also grown on account of the great size of the blooms it produces, and one or two other varieties are on trial. No old plants are retained, the cuttings for next season's batch now being propagated. These when rooted are gradually hardened-off, potted into 3-inch pots, placed in a cold frame, and in May or early in June are shifted into 10-inch pots, the size in which they flower, and are then placed outside. A gritty loamy soil is used, fine for the cuttings, and later on in a coarse state. They are never pinched back, and the central and principal side shoots are supported with stakes. They flower during the whole winter most freely in the temperature of an intermediate house, and should not be crowded.

Mr. Taylor's method of striking Carnations, Roses, Gardenias, Verbenas, Iresines, and many other kinds is worthy of notice, as being altogether different from that usually practised. Boxes about 24 inches long, 15 inches wide, and 5 inches and in some instances 7 inches deep, are employed. These are lightly drained, and about 2 inches of fine soil is used with a thin layer of sand on the surface. The cuttings are dibbled in thinly, watered, and closely covered with glass in three divisions. Strips of paper are pasted over the unions of the glass, and also round the edges of the glasses and boxes. The boxes are then placed over a gentle bottom heat, or along the paths near to the hot-water pipes of a forcing house, and the cuttings shaded when necessary with sheets of paper. The orthodox method with propagating frames and boxes is to take off the glasses and dry them every morning, but in Mr. Taylor's case the cuttings are hermetically sealed down, and are not broken open till it is seen they are rooted, when the glasses are removed and the cuttings gradually hardened, other boxes of cuttings taking their places. The plan is very rapid in effect, as the cuttings never flag from the time of insertion, and is particularly suited to the clean houses and plants. The cuttings do not touch the glasses, and are not liable to damp off.—VISITOR.

#### LECTURE ON THE TULIP.

On Tuesday, March 22nd, Mr. Shirley Hibberd gave a lecture on the Tulip in the conservatory of the Royal Horticultural Society. The lecture, which we publish in a slightly abridged form, was illustrated by many of the flowers that have acquired historical importance.

He said: The Tulip being the oldest and most important of the flowers that obtain the attention of florists, it may be anticipated that its history is not lacking in materials for our entertainment, but there are some points in that history that we may perhaps with advantage consider.

In searching through the old books we fail to find reason for classing the Tulip with the flowers of antiquity. Although ancient as a florists' flower, it is not ancient in any other sense. It must have been known to the Greek botanists, but they give us no certain clue to it in their writings, and we are left in doubt as to their recognition of it as distinct from the Lilies and the Narcissi. Certain old English writers find in the Tulip the *Satyrium* of Dioscorides. However, we must dismiss from our minds all our cherished notions of the possible importance of the Tulip as a garden flower antecedent to its discovery by Conrad Gesner in 1559, and then we begin the history of the flower with the history of a man to enhance the interest. Gesner of Zurich, born in 1516, was not only the first to make known the splendours of the Tulip, but he was also the first upon record who formed a museum of natural history, and the first botanist who distinguished the generic characters of plants, and thus prepared the way for grouping species in accordance with their more striking affinities. In this man we have a fine example of the glory that accumulates, slowly perhaps but surely, around the name of one who not only loves but labours in his vocation, and has for the chief hope of his life the completion of the tasks he has assigned himself. The catalogue of Gesner's books will surprise anyone familiar with the fewness of the facilities for bookmaking in his day—a day so different to our day, when books, and especially horticultural books, are made by the simple process of copying, and rendered obnoxious and harmful by the blunders of the copyists. Gesner records that he first saw the Tulip in the beginning of April, 1559, at Augsburg, in the garden of Councillor John Henry Herwart. In 1611 they first appeared in Provence in France, in the garden of the celebrated Peiresc. The Dutch obtained their first supply from Constantinople. The first that were planted in England came, according to Hakluyt, from Vienna, being obtained thence by Carolus Clusius. In some of the books Clusius is put before Gesner as the discoverer of the Tulip, but Beckmann very properly describes Clusius as having only collected and described the then-known species. Gesner travelled to obtain plants for his own botanic garden at Basil, and also subjects for the painters and engravers he maintained at his own expense; and it appears to me a peculiar and proper event that such a man should secure for the delight of northern Europe, and the florists of Holland and England, the flower which until then had been monopolised by the gardens of Constantinople.

It is a happy circumstance that the Tulip conforms to the law of Nature, for, like the sun and civilisation, it is first seen in the east,

and the west learns of it by a second edition. The Tulip must have been for centuries cultivated in the east somewhere or other, because, almost coeval with the first knowledge of it as a plant in western Europe, we find it represented by many varieties.

Turning to the literary representatives of the gardens of northern Europe, I find the first proper reference to the Tulip to be in the "*Historie of Plantes*" of the famous Rembert Dodoens, published in 1578. At page 213 of the large edition, and page 240 of the small edition which has no figures, we find the Tulip described as the *Tulpia* or *Lilionarcissus*, and thus we are compelled to confront the problem comprised in its name. What is to be understood by the term Tulip, or Tulipan, or *Tulpia*? In the case of the Hyacinth, Narcissus, and many other plants, a fiction of Ovid or any other poet delivers us from a difficulty, and enables us to give a reason, however ridiculous, for the name of the plant; but now, in the etymology of the Tulip, we seem to be completely undone. In Richardson's Dictionary occurs the definition "*Tulipan*, the Dalmatian Cap;" and Cotgrave is cited to justify the term "*tulipist*" as applied to lovers of Tulips, which we should allow in the present day without a scruple on the same ground that we allow "*rosarian*" as applied to a lover of Roses, and shall in due time, perhaps, have to allow for "*solanumist*," as applicable to a man who is mad about Potatoes. It is as clear as can be desired that Tulipan is the equivalent of turban, and that this flower takes its name from its resemblance to the head-dress of the east. Herein we have hints innumerable for the students of costume, and especially for those who design the dresses for the pantomimes of the present and near future. The Tulip is a turban, and there is an end of that part of the subject.

In Dodoens there are two classes of Tulips described, which are distinguished as large and small, and I think it will puzzle the botanists to distinguish them clearly according to modern nomenclature. It is sufficient to say that they are described as of many colours, and as differing in size only. A rude guess would make them representatives of our present early and late sections; the tall sort being *Tulpia Gesneriana*, the reputed parent of the late Tulips, the other, *T. oculus-solis*, the reputed parent of the early Tulips. But rude guesses are not to be desired, and we may have in the two sections recognised in 1578 the early Tulips as the largest, and the Van Thol, or *Tulpia suaveolens*, as the smaller kind. When we come to Gerard, 1597, we feel that we are on solid ground. He calls it the "*Tulpia*, or the Dalmatian Cap," and describes it as "*a strange and forraïne flower, one of the number of the bulbed flowers, whereof there be sundrie sorts, some greater, some lesser, with which all studious and painefull herbarists desire to be better acquainted, because of that excellent diuersitie of most braue flowers which it beareth.*" Gerard describes fourteen sorts under a general classification of *Præcox*, *Serotina*, and *Media*, the "*timely*" (or early), the "*later*," and "*flowering between both the others.*" The solid ground of Gerard acquires a vast extent in Parkinson, 1629, who enumerates 140 kinds, his classification being the same as that of his great predecessor, comprising early flowering, mean flowering, and late flowering. Parkinson gives us thirty figures of varieties, in some of which we see the "*flame*" and the "*feather*" in a fair state of development, affording delightful promise of the glories that were soon to be revealed and that were to turn the brains of the Dutchmen, and, by the follies of the great Tulip bubble or Tulip mania, prove their consanguinity with the English, who can enjoy a bubble as well as any people in the world. The fact is when John Parkinson was engaged in preparing these figures the bubble was being blown, and it was floating high in the sickly atmosphere of a fool's paradise in the year 1634, and did not burst until 1637. The story of this great folly, as told in Beckman's "*History of Inventions*," is so well known that it would be waste of time for me to treat of it in detail; but I will quote a few particulars from Munting's extracts from the account books of the traders, for the purpose of introducing some other matters that I think will perhaps surprise as well as interest our friends the florists. For one root of a variety called the Viceroy the following articles were offered—namely, 2 lasts of wheat, 4 lasts of rye, four fat oxen, three fat swine, twelve fat sheep, 2 hogsheads of wine, 4 tons of beer, 2 tons of butter, 1000 lbs. of cheese, a bed, a suit of clothes, and a silver beaker, the aggregate value of these articles being 2500 florins. In 1636 Henry Munting sold to a merchant at Alkmaar a Tulip root for 7000 florins, but before it could be delivered the price had fallen, and by agreement the merchant paid 10 per cent., so that Munting pocketed 700 florins for nothing; but it is recorded he would rather have delivered the root for the 7000! One man made by this trade a little fortune of 60,000 florins in the course of four months; so we may conclude that the Dutch people were as much excited about Tulip roots in 1634 as the English people were about railway scrip in 1845. But I quit this part of the subject by saying that the florists were in no way, or only in a shadowy way, mixed up with this folly; the speculators were noblemen, farmers, pedlars, sailors, and chimney sweeps. They knew nothing and cared nothing for Tulips, and they very rarely saw the bulbs they traded in, and probably many were bought and sold that never existed, the mere names serving as materials for speculation.

It is a very interesting question, however, as to what particular class of Tulips gave rise to the morbid excitement, and fed it with such few floral facts as were absolutely needful. A Tulip-grower of the present day would, *à priori*, declare that the late Tulips alone, with their noble forms and fine feathers, would suffice to afford the

inspiration. It is a singular fact that definite information on this point is very difficult of attainment, for the writers who should be able to speak authoritatively will be found to differ; some asserting that the Tulips of the Tulip mania were late Tulips, and others with equal confidence declaring that they were early Tulips. The Rev. William Hanbury, in his great work on "Planting and Gardening," in two folio volumes, 1771, page 859 of the first volume, says without hesitation, "The early species were the sort of Tulips that were so much coveted in the above-mentioned period, and for the bulbs of which, singly, such extravagant prices were given." The list in Parkinson's "Paradisus" long ago suggested to me that the famous Tulips of the seventeenth century comprised the two great divisions; for he wrote so near the time of the outbreak of the mania, and figured and described the several sections then recognised with such evident appreciation of the high merits of each, that it could not be expected the tide of public favour should suddenly contract to one narrow channel to compass only one class of these splendid flowers. I am now enabled to say without hesitation that the famous Tulips of the middle of the seventeenth century comprised both early and late varieties; and moreover, I can declare to you that some of the most famous of that day are at this day in cultivation, and are much prized for their beauty! In my endeavour to solve the riddle I have been greatly assisted by Mr. J. H. Krelage of Haarlem, who possesses a remarkably fine collection of books, pictures, and miscellaneous memoranda illustrative of the history of the Tulip, and he has generously put himself to much trouble to furnish me with original matter for this discourse.

To sum up the results, the Tulips of the bubble period were of all classes, but the principal were of the sections now known as Early and Late. A variety known as Zomerschoon, which was sold for 1010 florins, is still in existence; it belongs to the Late Rose class. The celebrated Admiral Liefkens was a Late Rose. Admiral Van Enkhuizen was a Late Rose. The mighty Semper Augustus must of course have special attention; of this it is said there were at one time only two roots available for commercial purposes, for one of which an offer was made of 4600 florins, a new carriage, two grey horses, and a set of harness. For the other a man agreed to give for a root twelve acres of land. Well, and what sort of thing was Semper Augustus? I asked my friend the Rev. F. D. Horner if he could give me any distinct idea of the style and complexion of Semper Augustus, and he replied indefinitely, but making a very good guess, as will be seen. He says, "I have pictured him in fancy's eye as a rough bizarre of spattery flame, and with skips in feather, long in the cup and thin in petal, foul in stamen, and perhaps base in base—in fact, with a touch of all the faults and blemishes which we have led the Tulips through to purity and beauty." Mr. Krelage is enabled to say, by means of the drawings in his possession, that the original Semper Augustus was a Late Rose, but there was, he adds, "a Bizard of this name which exists yet at present, and of which some bulbs were lately offered to me by some of my friends here."

So far as to the late Tulips of the speculative period. Now for the early ones. The early Tulip we know as Lac Van Ryn was of the number, and was sold for 175 florins. The Geil en Rood, which was sold for 235 florins, was an early Tulip. A very rectified form of Wit en Rood borde, which was sold for 2000 florins, was an early Tulip. Thus we may see that the two leading classes of Tulips were about equally favoured, and the case, as presented by Parkinson in his classification of 140 varieties, is fully justified by the facts at our command. It is to be hoped, however, that those severe florists who turn up their noses at early Tulips will for the future abstain from so distressing the muscles of their noses, as also of making known their possible lack of catholicity, for history has decided that the early Tulips have some technical merit, and it is always folly to oppose the stream that carries with it all the wrecks of time that are gifted with any degree of buoyancy.

Having treated the subject thus far historically let us now hastily regard it from the floral or artistic point of view. There are Tulips of many kinds, and their distinguishing characters are obvious to the most casual observer. Between the clear self yellow or white of a Pottebakker and the feathery pattern of a fine show Tulip the difference is so great that it really does not need to be pointed out. The alphabet of the tulipist may be learned in less time than the alphabet of our literature. But when we quit the elementary stage and plunge into details the parallel holds good, and it is about as hard to understand the details of the Tulip fancy as the intricacies and involutions of expression in English literature. But it must be added that the hardness is softened by its sweetness. It is a laborious task to master all that is required to be known by one who would pass judgment authoritatively on florists' Tulips, and it is not less hard—perhaps more hard—to acquire the knowledge and judgment required for the criticism of English authors from Chaucer downwards.

The early Tulips are judged by form and colour and general effectiveness, but the late Tulips are judged by a most severe judgment as to their form and the symmetry and purity of their markings; and an immensity of knowledge is required for the performance of the arduous task in a satisfactory manner. In the late Tulips some very strange characters are required, such as flames and feathers, of which we see but little in the early Tulips. Consequently at this stage of the story we come upon another of the peculiarly interesting points in the history of the Tulip—it is that which the florists term the "breaking" of the self-coloured flower into one variegated with stripes

and lines that are known as flames and feathers. The florists have perhaps said enough in respect of this wonderful process, but the biologists have not even yet in their ardent search after illustrations of evolution taken hold of the fact as of scientific interest. We sow the seeds, and the plants that rise therefrom produce in due time their flowers. But these flowers have but one colour, and they may be called selfs, but as a rule they are called Breeders. Now, these one-coloured Tulips are carefully scrutinised, and those that are considered deficient of form and substance are destroyed, the very finest of the breeders only being retained for further cultivation. The hope of the florist from this moment is to see his selected breeders break. As a matter of course all kinds of methods and tricks have been resorted to for the promotion of the much-desired "breaking," but only one secret has Nature and Time ever revealed to the anxious watcher over a bed of breeders. Yes, there is one secret, and to realise fully the capabilities of a breeder Tulip we have only to exercise patience. If we are not patient Nature will not move in our behalf; and if we are patient she will be none the less immovable, but will just take her own time, and when her time arrives the self-coloured Tulip will abandon its self colouring and appear with flame or feather, or both combined, a gratifying and glorious reward for the pains and patience of its possessor.

It may appear from this statement that the art of man has but little to do with the characters of the flamed and feathered, or, as we sometimes term them, the "rectified," Tulips. But here we encounter another of the curious features of this fascinating subject, for although the tulipist cannot by any science or any trick compel his breeders to break—and they will do it when they are in the humour, or perhaps never do it at all—nevertheless, the kind of break that may occur, and the style and fashion of the flower throughout, are under his control, and if he does but co-operate with Nature, and as little as possible stand in the way of her normal working, he may ensure the production of a race of flowers of a type determined by himself. To sum up this matter, we must bring to bear upon the production of Tulip seed a certain amount of science and taste, and having done this we must wait for the results. It is thus that distinct strains or races of Tulips have been established, as in one case the Chellaston Tulips, in another the Stapleford Tulips, and so on. We may begin with the selfs, but we must reserve for stud purposes those that have acquired the gorgeous stripes, and in due time we may expect their progeny to take after their parents, and thus keep us rich, and so reward us for our forethought. Thus, having found the Tulip quite unique in its manner of assuming the garb that has made it so renowned, we are now enabled to restore it to the rank of any ordinary flower, and see in its mysterious flames and feathers, and all the characteristics of its carriage and form, an illustration of the Shakesperian doctrine—

From fairest creatures we desire increase,  
That thereby Beauty's Rose might never die.

#### COVERING WALLS IN STOVES.

THE back walls in these structures are often bare and unsightly, and therefore the following outline of a successful mode of rendering them attractive will be useful to those who wish to effect such a purpose in the stove. Fix flat iron bars up the wall about a yard apart. The holdfasts should be either cemented or leaded in: wood should not be used, or the holdfasts require replacing every alternate year. The upright bars should have holes either punched or drilled through them 2 inches apart, through which galvanised wire can be run the whole length of the house in single wires. Another plan is to affix to the uprights on the face of the wall 2-inch-mesh wire netting. When wires alone are used very rough turf must be employed for packing next the wall, with small additions of leaf soil and peat to every layer of turf until the whole is filled, the space between the wall and wire being 3 inches. The wire netting should not exceed 18 inches in width, it being necessary to fill the space up, as the netting is attached to the upright bars. Where moss is plentiful it may be used between the netting and the soil. The compost must be pressed in very firmly, as a hollow space will soon be the result if it is placed in loosely. Besides a groundwork of Selaginellas pricked in about 6 inches apart the following are suitable:—*Begonias* of the ornamental-foliaged varieties; *Tradescantia discolor*, *T. vittata*, and *T. zebrina*; *Panicum variegatum*, *Gymnostachyum Pearcei*, *Adiantum cuneatum*, and *Pteris serrulata*. These should be about 2 feet apart; also a few young plants of *Cissus discolor* add considerably to its beauty. Every care must be taken to keep them moist by syringing twice every day, especially when first inserted. This mode of covering a wall is one of the most beautiful, amply repays for the trouble, and invariably gives great satisfaction when artistically executed.—A.

CALANTHES AT DRUMLANRIG.—Mr. Cox (page 215) appears to require further information about the above. It is well known that they are second to none in the kingdom, and as I hope Mr. Thomson will tell us in these pages the details of his culture I will not speculate on it. Had I found them with small pseudo-bulbs



nothing would have been said about their promise of flower, but as they might be compared to 3-inch flower pots turned upside down little knowledge was wanted to predict their flowering capabilities. When an experienced Pine Apple grower sees a batch of fruitless plants with short thick stems and broad sturdy leaves he can say with safety that they promise well for fruit. This rule applies to many plants, amongst others to *Calanthes*.—PARAGON.

#### PEAS.

WITHOUT wishing to enter into any controversy as to the hardness of early Peas, Mr. Iggulden will find in my notes at page 126 that I stated "Early Peas I have found will not succeed well if sown on heavy land, the wet in my opinion being more prejudicial than the cold." The writer I name also asserts at page 186 "that late autumn sowing on cold heavy soil is often a waste of labour and seed," so I conclude we are both of one mind as regards that part of the question. My remarks in a former paper applied to sowing on a south border, and as a general rule the soil in that part of a garden is lighter and more friable than the open quarters. Mr. Iggulden also asks, "What if the early winter be mild, followed, say, towards the end of January by severe frosts?" The weather may be mild—it was last year up to Christmas; and if it should be so throughout the greater part of January, the sun has so little power in warming the soil that the Peas would make no more growth in January than they would in a week or ten days in November. Peas endure cold better than is generally supposed. Several rows 2 inches in height on a south border, and a few rows in open quarters, withstood 12° of frost a fortnight ago, and with the wind in the north-east, without looking any the worse, although a sunny day followed. But it is, as your correspondent says, the cold and wet heavy soil that make root-action defective. The soil in November perhaps is not so dry as could be wished for sowing seed, but by having it dug on a fine day when turned over and exposed for four or five hours, it will not be so wet but that the seed may be sown. It will not require treading-in to make it firm, as may be the case in May or June. Certainly a large quantity of Wheat and Beans are sown on farms at that time of year whatever may be the condition of the soil, and that is not usually in such a pulverised condition as that of a kitchen garden under spade culture.

Mr. Iggulden asks what difference there is between Yorkshire Hero and Veitch's Perfection. Possibly there may not be much; there is not between many other vegetables, and flowers also. Six or seven years ago I sowed both varieties the same day on light gravelly land. The only difference I found was this—the first-named produced pods fit to pick a week earlier than the other, averaged 6 inches taller in growth, with a little difference in the shape of the pod. Both are of excellent quality. Huntingdonian is undoubtedly a first-rate Pea; it has finer pods than Champion of England, and is equal to it in cooking qualities. I doubt if it surpasses it, but that may be a question of taste. I have grown it three years in succession, but find I can pick more pecks of Peas from a given quantity of seed or a given number of rows of Champion than I can from Huntingdonian. Both these should be sown in rows at least 5 feet apart.

I desire to thank your correspondents for the useful information they have given me as to the best method of preparing paraffin tubs for plants.—A. HARDING.

MR. IGGULDEN is no doubt a good cultivator of vegetables, and is well acquainted with modern varieties. His writings, however, imply that he has not had to combat the inclemencies of a northern temperature, and that he is not old enough to remember the varieties of Peas that were grown say thirty years ago. Had he practised his calling in Yorkshire instead of in the south of England he would not advocate sowing Peas early in November, nor would he labour under the delusion that Peas are so tender as he suggests, and that autumn sowing is of little use. I have sown Peas in the autumn for thirty years, and during the whole of that time I have certainly not had five failures, and the rows have often been as productive as those sown in early spring, and always a week earlier. Peas that are sown so that they only just appear fairly above ground before winter are as hardy as Cabbage plants, and yet I presume your correspondent plants these in the autumn.

Mr. Iggulden evidently does not know the true Yorkshire Hero Pea. It is a little taller than Veitch's Perfection, rather smaller in the foliage and more slender in the stems, produces a greater number of tendrils, and perhaps of pods, but the latter are not quite so large as those of the other variety. The Yorkshire variety is also earlier than Veitch's. I suspect, however, it is somewhat the

custom in seed houses to supply both varieties from the same bag. Can Mr. Iggulden inform me who was the raiser of Huntingdonian and its parentage? This information will perhaps show that it is not the true old Champion. Those who will save seed from the large instead of the small pods of the Champion will, I fancy, soon have a "Huntingdonian." The Champion of England Pea, as ordinarily sold, is not so fine as it was a quarter of a century ago. I could name other Peas that have generally degenerated, and selected stocks of them have sprung up under new names.—A YORKSHIRE GARDENER.

#### A FEW REMARKS ABOUT ROSES.

I AM glad to notice the tide of feeling against cultivating so many standard Roses becoming stronger and more pronounced. The last three winters must have taught all who grow them in quantity how expensive the "keeping of them up" is. They are much more expensive to purchase, take much more labour, are much more likely to suffer from gales of wind, and in my experience six standards are injured by frost for one dwarf, whether the latter are on their own roots, or on the Manetti or Briar. All winter and early spring few objects are more unsightly than a standard Rose. A great number of dwarfs and standards are grown here, and the havoc by last winter's frost among the latter has been terrible, while dwarfs have escaped wonderfully. In one bed alone of between three and four hundred standards fully one-half have perished, while the others are very much crippled. In more exposed beds the standards have been nearly annihilated.

Is it not matter for regret that so many comparatively tender sorts of Roses are cultivated to the all but exclusion in many instances of the fine old hardy Moss and Cabbage Roses? What can be more beautiful than beds of Moss Roses? and the sweetness of the Cabbage Rose is peculiar to itself. Then there are the good old hardy and almost perpetual Chinas or Monthly Roses. Do these have the patronage they deserve? The two former flower only once a year it is true, but to how many lovely flowers cannot the same objection be applied? We seldom meet with the delicious Cabbage Rose properly prepared for forcing into bloom in early spring, yet what is more lovely or deliciously scented? We question if even the Teas can excel it in this point.

Would it not be much more satisfactory to grow fewer at least of standard Roses, and devote the extra labour and expense they entail to these two fine old Roses? I have long thought that Rose-growers have far too many varieties. The names are numerous, but for all practical purposes a few varieties of the best of each colour grown in quantity is more satisfactory than such an endless array of names that often cause more confusion than pleasure. For instance, a small grower with, say, about two hundred plants might find it much more satisfactory to grow twenty-five instead of fifty varieties.—D. THOMSON.

#### FRUIT-TREE PLANTING IN CORNWALL.

I QUITE agree with "R. I. L." (page 191) that farmers in Devon and Cornwall do not seem to think their orchards of much consequence. This is to be deplored; but the fact is, the farmers often have a short lease, so that it is scarcely to be supposed that they will uproot an old tree and plant a new one in its place. When there is an abundant crop the overplus is either given to the pigs or left on the ground to decay. In the event of the orchard ground being laid down with grass the cattle are allowed to roam everywhere, not the slightest protection being offered the fruit trees. The market gardeners here, however, pay more attention to their fruit trees, and with good results. Between the rows of Apple trees Gooseberries are planted, and it is strange if one crop does not prove satisfactory. The Keswick Codlin and Lord Suffield are the principal varieties grown for general cropping. Trial on a small scale has been made with both Newtown Pippin and Baldwin, but at present I do not know with what success. Many acres are taken in for fruit cultivation in Cornwall, and are planted with Raspberries, Strawberries, Apple trees, &c., and more will, I think, be planted next year, and not underneath trees but in the open.—W. ROBERTS, *Penzance*.

THE GLOXINIA.—These can be grown by anyone who has a Cucumber frame to start them in, and a greenhouse to grow them in afterwards. If there are Vines in the same house so much the better, as Gloxinias require shade when in bloom. We shake the plants out of the pots and place them closely in boxes or pans, and slightly cover with light soil or cocoa-nut fibre refuse, and place in the frame, where they will soon start and be ready to pot off



in a few weeks. When potted before starting they are very liable to decay. Seed sown now will produce plants that will flower by autumn and make fine tubers for the following summer.—STIFFORD.

#### CHOROZEMA CORDATUM SPLENDENS.

AMONGST beautiful decorative plants at this season of the year this *Chorozema* ranks very high with its distinct lovely Pea-shaped flowers. It is easy of cultivation, and admirably adapted for the conservatory, small plants being also suitable for the embellishment of rooms, and a well-grown specimen is very attractive in the exhibition tent. It is also suitable for planting out either against pillars or to cover walls in cool houses, but when employed for this purpose good drainage must be provided, or failure is almost sure to be the result.

Propagation is effected by means of cuttings, which root readily, or from seed, which some consider the better mode. Having raised plants both ways I have never found much difference, the seedlings being perhaps a little more robust. As a rule the seed sets freely, and should remain upon the plant until thoroughly ripened, then sow it at once in a pan filled with fine peat and sand. The seeds should be well covered with similar compost, watered, and placed in moderate heat, and in a short time they will germinate. When large enough the plants should be potted singly in 2-inch pots. Cuttings are plentiful after flowering is over. The young shoots should be selected and taken off when about 2 inches in length with a small heel, and a number placed in a 5-inch pot filled with sandy peat and half an inch depth of silver sand on the surface. When the cuttings are inserted carefully water them, plunge the pots in slight bottom heat, and cover with a bellglass. The cuttings must be shaded from strong sunshine, and sprinkled with a fine syringe from time to time to keep them fresh. They will soon form roots—in fact, in shorter time than the seedlings will appear if sown at the same time as the cuttings are inserted. They must then be placed singly in 2-inch pots, and again placed in bottom heat for a week or ten days until the roots start freely, when it can be dispensed with altogether and the plants gradually accustomed to a lower temperature. A night temperature of 55° will be ample after they are established, and they will make much greater progress than if subjected to a greenhouse temperature from the first. The points of the young plants must be taken out as soon as rooted to induce a branching habit. When the small pots are full of roots the plants should be shifted into pots 2 inches larger, which will be large enough the first season, and if attention is paid to stopping the shoots bushy little plants will be produced by autumn. After being placed in 4-inch pots a cold frame will be the best position, with a bottom of ashes or any cool moisture-holding material. After this potting the frame should be kept close for a time, the plants being well syringed overhead and shaded during bright sunshine. The plants must be gradually hardened as they become established, ventilating the frame freely on all favourable occasions until autumn. During winter a temperature ranging from 40° to 45° will be suitable. They will endure a much lower temperature, but with young plants it is not advisable, as the roots do not remain so active, nor will the young plants start into growth so freely in the spring. Early in the year, say in the month of February, the plants should be placed in 6-inch pots, which must be well drained. The house must be kept close at first after potting, and the temperature raised a few degrees. The plants will soon start vigorously into growth, and must as the season advances be hardened again by cool treatment. If good attention is paid to them the largest will be ready for 7 or 8-inch pots by the end of July, and the shoots should not be again stopped if wanted to bloom during the following spring.

This *Chorozema* can be flowered every season from the cutting stage, but it is wise to sacrifice the bloom of one or two plants until creditable specimens are formed, which can be obtained in three years. After the first season growth should be rapid, and potting must be done twice each season until the plants are in 10 or 12-inch pots, which are large enough for all ordinary specimens, unless required for exhibition.

Potting must be carefully done in all stages. The old ball must not be broken nor the roots disturbed to any extent when removing the crocks. The soil, which should consist of peat and coarse sand, should be pressed firmly into the pots. They will do well in a mixture of peat and loam, but all peat is preferable, as it is not so liable to become sour. Watering in all stages must be carefully attended to, especially for some time after potting, and the roots are quickly injured by an insufficient supply, red spider soon attacking the foliage. The syringe should be liberally employed twice daily during the summer months. Training is very simple, and a few stakes only are required at first to support the growths.

When sufficient growth is made the plants can be trained upon a balloon trellis, as they are shown to greater advantage upon it than any other shape. Plants in 8 and 9-inch pots trained on small trellises about 18 inches high are charming and distinct objects for conservatory decoration. Beautiful little plants for vases and the front lines of plant houses can be grown in 5 and 6-inch pots.—WM. BARDNEY.

*CHOROZEMA CORDATUM SPLENDENS* undoubtedly deserves to be much more generally known. Several other species and varieties are grown, but for general utility the one under consideration can scarcely be surpassed. The flowers are pea-shaped,



Fig. 53.—*Chorozema cordatum* var. *splendens*.

as the woodcut shows, the broad petal or standard being of a rich orange red colour, with a lighter blotch near the base; the other portion of the flower—the wings and keel, being purple. The leaves are bright green, ovate in form, and having a spinose margin. The habit is rather loose and straggling, and, as has been stated, the plants require training to a trellis of some kind, when they become specimens of moderate size. Mr. Roberts, gardener to the Baroness Rothschild, Gunnersbury Park, has a high opinion of the plant, and grows a number of specimens mostly trained in a globular manner. These are now in excellent condition, and the accompanying woodcut represents a spray from one of them.

The species is a native of the Swan River territory, whence seeds were obtained by Mr. Robert Mangles about 1833. They germinated, and the young plants were freely distributed during the three or four following years. The variety *splendens* is an improved form of the plant, surpassing the type both in the size and colour of the flowers, but when or where it originated I do not know.—L. C.

*SIPHOCAMPYLUS HUMBOLDTIANUS*.—For some time past a specimen of this plant has been flowering in one of the compart-

ments of the new range at Kew. It is well worth growing in a stove or intermediate house, the latter, perhaps, suiting it rather better, as the growth is more robust and the flowers last longer in a cooler temperature. In habit it is moderately compact and bushy, with shining dark green ovate leaves, and brilliant orange-scarlet tubular flowers produced singly in the axils of the leaves near the summits of the shoots. The corollas are strangely bent or curved downwards, and have a small limb of five acute segments, which are of a lighter colour than the tube, the throat being yellow. In striking contrast with these lively tints are the deep blue anthers, which are united in a ring round the style, and protrude a short distance beyond the mouth of the corolla. The stigma is two-lobed, and is surrounded by a hair which acts as a kind of brush; and when the style is growing and forcing the stigma through the ring of anthers, the lobes being then folded face to face, the pollen is removed and pushed out of the flower. After this the two lobes of the stigma expand and become receptive. This peculiar process closely resembles that which takes place in many members of the natural order Compositæ. The plant is a native of Peru, and first flowered at Mr. W. Bull's nursery in 1866, from which a coloured plate was prepared for the "Botanical Magazine." Three years later Mr. C. Green exhibited a plant before the Royal Horticultural Society and obtained a first-class certificate for it.

### ROYAL HORTICULTURAL SOCIETY.

MARCH 22ND.

AFTER a week of brilliant spring-like weather it was unfortunate that a snowstorm accompanied by a keen cold wind should have prevailed on the morning of the first Show of spring flowers. The inclemency of the weather, however, did not prevent exhibitors staging beautiful collections, although it could not fail to have a deterrent effect on visitors; yet these were numerous, select, and appreciative, a change to clear and sunny weather fortunately occurring shortly after noon. The display was satisfactory in the highest degree; rarely, indeed, has it been equalled, as is evidenced by the large number of gold medals awarded, no less than eleven having been adjudged to the chief exhibitors. The general excellence of the plants staged was remarked by many visitors, and all seemed to have done their best to render the Show as successful as possible. The Floral Committee's duties were comparatively light, as the bulk of the plants were staged in the conservatory, but the Fruit Committee had not a single exhibit to adjudicate upon—a remarkable and rare occurrence.

#### SPRING SHOW.

The conservatory bore an unusually gay aspect, and rarely has a greater number of beautiful plants been arranged there thus early in the season. Hyacinths were of course the chief feature, but there was abundance of other plants, so that the general appearance was not only bright but varied. A stage extended down the centre of the broad path; this was entirely occupied, and tables on each side were also filled with floral treasures, the general disposition of the groups being highly creditable to the Superintendent.

Three special prizes were offered by a Fellow of the Society, and these were supplemented by two others, the class being for nine pots of Hyacinths and the same number of Tulips. The competition was good; five exhibitors entering the lists, though the two first were far ahead of the others. The silver cup was allotted to Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, who staged an even collection of Hyacinths and Tulips, all the plants being in excellent condition. The Tulips represented were white Pottebakker, Van der Neer, Proserpine, white Joost Van Vondel, Keyzers Kroon, Vermillon Brilliant, and Fabiola; all were very fine, the flowers neat, and the colours bright. The Hyacinths had massive spikes with good bells, the varieties being Grand Lilas, Gigantea, Koh-i-Noor, Marie, Mont Blanc, Vuurbaak, Lord Macaulay, King of the Blues, and Le Grandesse, all admirably grown. Mr. Moorman, gardeuer to Miss Christy, Coomb Bank, Kingston-on-Thames, was a very close second with a good collection, the Hyacinths not quite so fine as Mr. Douglas's, but the Tulips were rather better in general condition. One yellow variety of Tulip named Mon Tresor was especially noteworthy for the excellent form of the flowers and the purity of their colour. Among the Hyacinths the most noticeable were Czar Peter, very fine; and Lord Derby. Mr. C. Parker, Clay Hall Works, Old Ford, E.; Mr. J. R. Roberts, 79, Mile End Road, E.; and Mr. C. J. Dance, 437, Mile End Road, E., were respectively awarded the third, fourth, and fifth prizes for rather small but healthy specimens.

Of the numerous collections exhibited by nurserymen and others the most imposing was that from Messrs. J. Veitch & Sons, Chelsea, which occupied at least 100 feet in length of the central staging, in addition to a group at the end of the conservatory. First were the Hyacinths, which alone constituted a magnificent display, for probably finer plants have never been exhibited. Massive and compact spikes, large flowers, and clear bright colours indicated not only the excellence of the bulbs but the carefulness of the culture bestowed upon them. The varieties were also numerous, and an excellent oppor-

tuity was afforded visitors of making a selection; this many seemed to appreciate, for note-books and pencils were in great request, especially among the ladies. Over two hundred plants were shown, and the Council signified their high estimation of the group by awarding a gold medal for it. Amaryllises were also staged by the same firm in large numbers, many handsome varieties being represented, the symmetrical form of the flowers being especially notable. Their bright colours, too, contrasted well with the Hyacinths, but the latter constituted the attraction of the day, though a gold medal was also awarded for the Amaryllises. Following them were groups of Spiræas, dwarf Guelder Roses surprisingly well flowered, the pretty Rhododendron Early Gem, with specimens of the snowy white-flowered Japanese Quince, *Pyrus japonica alba nivalis*, which were flowering very freely. In addition to these a group of Camellias in pots was arranged near the entrance to the conservatory. They comprised healthy well-grown plants 4 to 6 feet in height, and bearing some excellent flowers. Another gold medal was awarded for this group, being the third obtained by Messrs. Veitch on this occasion—a fact which in itself speaks highly for the quality and beauty of their exhibits.

Still keeping to the chief exhibits of bulbs, the next deserving attention was the group from Messrs. Osborn & Sons of Fulham. This comprised about 120 Hyacinths and fifty Tulips, representing a very large number of varieties generally in admirable condition, among the Hyacinths; the spikes being large, the bells of good shape, and the colours good. The Tulips were not so fine, but a good selection was shown, well meriting the gold medal awarded for them. A similar award was made to Messrs. Wm. Cutbush & Son, Highgate, London, for large and handsome groups, comprising about a hundred Hyacinths notable for the size of the spikes and the good selection of varieties, which well entitled them to the medal awarded. They also had a pretty group of Azaleas of the indica and mollis types. The former were compact specimens in 24-size pots and remarkably well flowered. Six boxes of Camellia blooms were staged, including good examples of Bealii, Miniata, Countess of Orkney, Saccoi nova, Teutonia, Mathotiana, and the old Alba plena. Some small Camellias in pots were also shown.

The chief amateurs' collections were the two following, for both of which gold medals were awarded. Captain Patton, Alpha House, Regent's Park, had a large and handsome group of Hyacinths, with a back row of Spiræas and Dielytras arranged alternately, and an edging of *Isolepis gracilis*. The Hyacinths were in admirable condition, the spikes massive, and the colours good. They appeared to have been very well grown, as the foliage was well developed. Mr. Moorman had also an extremely fine group comprising about a hundred Hyacinths and 120 Tulips, all in very satisfactory condition. The Tulips in particular were in fine form, the flowers neat, and the colours bright and diversified. The whole group was very creditable to Mr. Moorman's cultural skill, and he deserved the honours he received.

The miscellaneous groups were uncommonly fine, the most remarkable being that from Mr. B. S. Williams, for which a gold medal was awarded. This handsome group comprised 120 Orchids in excellent condition. *Cypripedium villosum* was represented by several large specimens with a number of flowers. *Phaius grandifolius* was also in fine condition, and a number of Dendrobis. The rare little *Lælia harpophylla*, with small orange-coloured flowers, was represented by several specimens, and many other both rare and beautiful Orchids indicated not only the extensive stock of the Holloway nurseries but the energy of the proprietor in bringing them out on such an unpropitious morning. The General Horticultural Company (John Wills, Limited), Onslow Crescent, Anerley, and Regent Street, exhibited an extremely graceful group of plants that was very much admired by visitors. It chiefly consisted of Palms, the elegant *Cocos Weddelliana* predominating, with *Adiantums*, *Dracænas*, *Crotons*, and other fine-foliage plants. The central plant was a fine specimen of *Anthurium Schertzerianum*, bearing over two dozen large spathes, and on each side of this were nooks filled with Forget-me-nots, with a few plants of *Odontoglossum cirrhosum* gracefully intermingled, and brightened by some *Masdevallias*, small *Anthuriums*, and Azaleas. A gold medal was awarded as a recognition of the taste displayed in the arrangement of this charming group. A gold medal was also awarded to Messrs. Paul & Son, The Old Nurseries, Cheshunt, for a collection of handsome Roses in pots very well flowered. Among them the following were especially notable:—Annie Laxton in a 10-inch pot with twenty flowers, Madame Lacharme with about thirty blooms, and La France with twenty blooms. Other noticeable varieties were the Duke of Teck, large flower, rich rose colour; Madame Alphonse Lavallée, with a fine rich pink bloom; and Gloire de Bourg la Reine, intense crimson. Mr. J. Aldous, Gloucester Road, South Kensington, was awarded a silver Banksian medal for a tastefully arranged group of flowering and fine-foliage plants, including Azaleas, Spiræas, Hyacinths, Tulips, Mignonette, Pelargoniums, Palms, Ferns, &c. The edging was very pretty, consisting of plants of *Scilla siberica* and *Isolepis* alternately. Henry Little, Esq., Hillingdon Place, Uxbridge (gardener, Mr. Wiggins), was awarded a silver Flora medal for a collection of Cyclamens and Cinerarias in very good condition, the colours of the latter being particularly bright. Mr. H. B. Smith, Ealing Dean, obtained a gold medal for an extensive group of Cyclamens, flowering freely and comprising over two hundred plants. Messrs. William Paul & Son,



Waltbam Cross, were awarded a silver Banksian medal for a collection of Camellia blooms in the customary fine condition. The varieties that were particularly noteworthy for their excellence being Cup of Beauty, bluish, good form; Marchioness of Exeter, large blooms, rich crimson; and Countess of Derby, a beautiful pink variety. Messrs. H. Cannell & Son secured a silver Banksian medal for a collection of Cinerarias, the colours of which were remarkably bright. Messrs. Smith & Lark, Kensington, exhibited several baskets of cut flowers very tastefully disposed, and specimens of the Bentley Patent Water Spray were also shown by the London agents (The General Horticultural Company). A silver Banksian medal was awarded to Mr. J. Douglas for six handsome specimens of *Deutzia gracilis*, extremely well flowered, and a similar award was made to Messrs. Barr & Sugden of Covent Garden for a collection of Cyclamens.

The following new Hyacinths were exhibited by Messrs. Veitch, and some surprise was expressed by critical visitors that none was certificated. *Primrose Perfection*.—Spike large and moderately compact; bells of medium size, rather narrow petals, but of an excellent clear yellow tint: indeed it is one of the best yellow varieties. *Queen of the Blues*.—Spike very compact, the floral portion 5 to 6 inches long; bells finely formed, colour light blue. *Beatrice*.—Spike of moderate size; bells of good size, and creamy or bluish white. *Cesar Alexander*.—Spike very large and compact; bells very neat in form, and rich dark blue in colour. *Sir Frederick Roberts*.—Spike close and of good form; bells symmetrical, bright rosy pink, darker in the centre of the petals: a beautiful variety. In addition to these the varieties named below were some of the best in the various groups. *White*.—La Grandesse, Mont Blanc, L'Innocence, Alba maxima, Madame Van der Hoop, Lord Shaftesbury, La Franchise, Baroness Van Tuyl, British Queen, and Snowball. *Dark Blue*.—Christy Minstrel, General Havelock, Duke of Connaught, King of the Blues, Mimosa, Sir Harry Barclay, Prince Albert, and Argus. *Light Blue*.—Grand Bleu, Lord Derby, Cavaignac, Grand Lilas, John Bright, Czar Peter, Princess Mary of Cambridge, Grand Monarch, Lord Byron, and Electra, the last-named, a handsome variety, certificated last year, and likely to become valuable for exhibition. *Red*.—Prince Albert Victor, Von Schiller, Pelissier, Etna, Lord Macaulay, Solfaterre, Garibaldi, Vaurbaak, and Linnaeus. *Yellow*.—L'Or d'Australie, Bird of Paradise, Obelisk, Ida, King of Yellows, and Jonquillon. These were all single varieties, very few double forms being shown.

#### COMMITTEES.

**FLORAL COMMITTEE.**—Dr. Kellock in the chair. The exhibits in the Council-room were not very numerous, being confined to a few new plants, and some of special interest. Messrs. J. Veitch & Sons of Chelsea staged a small collection of plants, including a plant of a species of *Amelanchier* bearing racemes of flowers with narrow white petals; *Clematis coccinea*, an elegant species, with small three-lobed leaves, and solitary pale rose-coloured bud-shaped flowers. A deep scarlet-coloured variety of *Azalea indica* named Comte de Gomer was shown in good condition, and a semi-double pink and white form named Empress of India was similarly noticeable. Several new Hyacinths and Amaryllises were exhibited, one of which was certificated and is described below. Mr. Charles Winn, Birmingham, sent a plant of *Masdevallia Roezlii* bearing a rather large flower, something in the way of *M. Chimara*; the sepals are thickly spotted and streaked with a very dark brown, almost black; the lip being small, fleshy-coloured, and shell-like in form. Mr. C. Green, gardener to Sir George Macleay, Bart., Pendell Court, Bletchingley, exhibited a specimen of *Pitcairnia corallina*, a species with leaves 3 or 4 feet in height, from the axils of which started a spike 1½ foot long of bright coral red flowers 2 or 3 inches in length. Specimens of *Fuchsia splendens* and *F. cordifolia* were also sent in flower, well showing their distinctive character. A vote of thanks was accorded. Mr. George, gardener to Miss Nicholson, Putney Heath, exhibited a collection of *Abutilons*, representing several good varieties.

Mr. B. S. Williams, Upper Holloway, sent several new plants, including *Imantophyllum cruentum*, with a fine truss of orange scarlet flowers; *Cypripedium Turneri*, *C. politum*, and *C. chloroneuron*, and specimen of *Chirita asparagoides*, a neat plant resembling an Asparagus, as the name signifies. Mr. H. B. Smith, Ealing Dean Nursery, sent several handsome Cyclamens, the most remarkable being Queen Victoria, white, of great size and good substance, the petals very broad and rounded. Rose d'Amour was a good crimson variety, and Prince of Wales similar. Henry Little, Esq., Hillingdon Place, Uxbridge, sent several Cinerarias and Cyclamens, one of which was certificated. A vote of thanks was accorded to Mr. G. Smith, New Villa, Hedge Lane, Edmonton, for a collection of Cineraria blooms remarkably good in colour. Messrs. Osborn and Son, Fulham, sent three new single Hyacinths, named respectively Empress of India, good red; Queen of the Blues, pale blue; and Royal Blue, very dark blue, large bells, white centre. Messrs. Charles Lee & Son, Hammersmith and Isleworth, exhibited half a dozen plants of Lilac Charles X. in 32-size pots; they were about 18 inches high, and flowering very profusely. A specimen of *Staphylea colchica* was also shown of similar size. A vote of thanks was accorded. Mr. Salter, gardener to J. Southgate, Esq., Selburn, Streatham, sent a plant of *Odontoglossum Lebmanni*. The flowers have narrow sepals and petals, yellow barred with reddish brown, and an acute brownish lip. Mr. Richard Dean, Ealing, sent a basket of Primroses, including some very pretty varieties, the most noteworthy being Virginia, white; Brilliant, rich crimson; Auriculæflora, maroon; and

Crimson King. Messrs. Wm. Paul & Son, Waltbam Cross, also sent a collection of Primrose seedlings from the variety Scott Wilson, showing a great diversity in the size and colour of the flowers.

First-class certificates were awarded for the following plants:—

*Amaryllis* Mr. Henry Little (Veitch).—Flower of great size and excellent form; petals broad, of good substance, rounded, and rich deep crimson in colour, with a few darker veins and white streaks towards the apex of the petals.

*Fuchsia rubra*.—This plant was exhibited by Mr. Wells, gardener to R. Ravinbill, Esq., Fern Hill, Windsor, and was stated to be a seedling, the result of a cross between *F. Dominiana* and *F. serratifolia*, both of which it resembled to some extent. The flowers were borne very freely, the tubes very bright crimson, 3 to 4 inches long, with small bright scarlet petals. The leaves are elliptical, 4 inches long, and 1½ inch broad, bright green. It was stated that the plant had been in flower since last October.

*Dendrobium lituiflorum* var. *candidum*.—This plant, a distinct variety of a well-known species, was exhibited by Sir Trevor Lawrence, Bart., Burford Lodge, Dorking. It had a growth over 2 feet in length, and bore fourteen flowers with pale yellow lips and pure white petals and sepals.

*Cyclamen persicum Ruby Gem* (Little).—A pretty variety, of neat habit, with flowers of medium size but excellent form, and of a very deep rich crimson colour; in fact, it is scarcely surpassed in the depth of tint.

**SCIENTIFIC COMMITTEE.**—*Plants Exhibited.*—*Masdevallia Roezlii*, by C. Winn, Esq., of Birmingham, received a botanical certificate. A hybrid seedling *Cypripedium Saundersianum*, cross between *C. caudatum* roseum (male), and *C. Scblimii*, by W. Marshall, Esq., Rutland Gate, Belvedere. *Pitcairnia corallina*, exhibited by Mr. C. Green, gardener to Sir G. Macleay of Pendell Court; it received a botanical certificate. *Dendrobium Wardianum*, a spray accidentally broken off three months ago and laid on a table, was in full bloom, bearing eighteen blossoms.

Gall or *Cicidomyia salicis*, a woody gall exhibited by Mr. McLachlan. Conifer Shoots.—Dr. Masters exhibited boughs attacked by a gumming or rather resin-producing disease, forming pustules which burst and liberate resin. The disease kills the Conifers. Dr. Masters exhibited sprays of a Yew in full blossom (male) which had been transplanted at Buckland near Dover. The tree was 8 to 900 years old. Mr. Wilson informed the Committee that two valuable horses were lately poisoned by eating Yew boughs. He exhibited a specimen of *Amelanchier vulgaris*, and alluded to its geographical distribution, being found on Swiss mountains, North America, Himalaya, and Japan.

#### MARÉCHAL NIEL ROSE.

I HAVE in a greenhouse under my charge a Maréchal Niel Rose on its own roots ten years old at the present time, and apparently in the most vigorous health, with hundreds of bloom buds. The mother plant of this was fourteen or fifteen years old last season when removed to make room for another variety, and was then in good health. We have cut from these plants four hundred blooms every year, and could have cut more had they been allowed to extend over a larger trellis. This Rose like many others is more partial to some soils, and I think the chief failures arise from it being planted in too light a soil, which is more apt to cause canker. The compost recommended by Mr. Bardney (page 146), with a handful of charcoal added, I have found to suit it best, with a good drainage.—R. PHILLIPS.



As our readers will remember, we felt it our duty to publish some denunciatory remarks on page 284 of our issue of September 23rd, 1880, relative to a peculiar instance of PRESS PIRACY as described in the paragraph in question. In consequence of our observations Mr. Robinson of the *Garden* demanded of us, through his solicitors, a public apology in terms satisfactory to himself. As the Editor of the *Garden* had transferred to his columns an article from an Irish paper, whose title he gave as the authority of that article, which had been abstracted from our columns without acknowledgment, we conceived that an apology was rather due to us. However, we did not ask for one, nor was any explanation tendered. Instead of this course, which we presume would have been honourable, an action for libel was raised against us. The complainant having certified for a



special jury, the case was tried before Mr. Justice Manisty in the Queen's Bench Division at Westminster on the 22nd inst., and without any witnesses for the defence being called a verdict was at once given in our favour with costs. Such is a brief record of the case, on which we desire to make no comment; but a feature in the case demands notice. We received a letter by post, a perfectly honest and genuine expression of opinion on the part of a correspondent, which we published on the page quoted, and on which the alleged libel appears to have been founded, on the assumption that such letter was either written in the neighbourhood of our office or with our cognisance. There is not the remotest particle of truth in either assumption. We were subpoenaed to produce the letter, which was in Court, but the plaintiff's Counsel, in the exercise of his discretion, did not call for it. The litigation has now ended, and we desire to live amicably with all our contemporaries; and as in the past, so in the future, we shall endeavour not to be the aggressors in any trifling dispute that may arise; and if by any error we should transgress the rules of literary propriety, we shall feel that we can afford to adopt the honourable course of rendering our acknowledgments or tendering our apologies when either can be rightly expected.

— AT a general meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Col. R. Trevor Clarke in the chair, the following candidates were duly elected Fellows—viz., Ephraim Burford, Right Hon. Geo. Cubitt, M.P., Major General James Davidson, Mrs. E. A. Eno, Everitt Everitt, Mrs. J. W. Flanagan, R. T. Harding, Mrs. Henry S. King, Frederick W. Lawrence, Mrs. Ries, Archibald H. Secretan, Mrs. Catterson Smith, Richard H. Tidswell, Mrs. Underhill, and Col. Weguelin.

— ON Saturday last Messrs. W. Paul & Son of Waltham Cross had an EXHIBITION OF CAMELLIAS at the Royal Aquarium, Westminster. About twelve hundred blooms were staged, representing over fifty varieties. The majority of the flowers were very fine, all the best varieties in commerce being shown. Some fine Hyacinths and Tulips were also contributed from Mr. Beckwith's nursery at Tottenham.

— MR. CHILD has under his charge an extensive and beautiful display of PRIMULAS AT GARBRAND HALL. The varieties, chiefly the grower's own selection, are excellent; the flowers large, flat, finely fimbriated, circular in outline, and of good substance; the whites pure, and the crimsons bright. One house is entirely devoted to plants of the white variety, and the abundance of flowers produces a beautiful effect, there being no bright colours to mar their purity. In another house there is a similarly satisfactory display of the crimson-flowering forms. In all the plants the foliage is neat, the leafstalks moderately short, and the blade even and regularly cut; the rich green tint—the invariable attendant on careful culture—still farther enhancing the beauty of the plants, the trusses of bloom rising sufficiently high to be clear of the foliage, thus avoiding the unpleasant and too frequently seen extremes of being so tall as to appear weak, or so dwarfed amongst the leaves as to be scarcely visible. The old double white Primula also receives attention, and with the same good results for vigorous health and a bountiful supply of these useful flowers. Mr. Child is a very successful grower of Primulas, and his mode of culture is detailed on page 225.

— WE are requested to state that the BURTON-UPON-TRENT HORTICULTURAL SOCIETY will hold their Exhibitions on June the 22nd and August the 24th. Mr. R. B. Barratt, Abbey Cottage, Horninglow Street, Burton-upon-Trent, is the Secretary.

— REFERRING to GLADIOLUS CULTURE IN SCOTLAND a correspondent writes—"After Mr. Galloway dissolved partnership with Mr. Robertson the latter showed them quite as fine as before that time. The most wonderful spikes I have ever seen were

produced under the care of a manager at Stuart & Mein's of Kelso. He only grew a few dozens, but most of them turned out superb spikes. Your Irish correspondent's mode of early planting would not do here at all."

— THE decorative value of LACHENALIAS IN POTS is well shown at Gunnersbury House, where Mr. Hudson, the able gardener, grows a number of specimens, chiefly of *L. tricolor*, in 48-sized pots, several bulbs in a pot. They are now bearing hundreds of spikes of their pretty tubular red and yellow flowers, producing quite a gay effect upon the shelves of a moderately cool house. The bulbs will flower well for several years in the same pots if supplied with liquid manure; but the disadvantage of allowing the plants to remain too long without a potting is that they become very crowded and irregular in height, which can only be remedied by shaking them out every year, selecting the bulbs that are nearly equal in size for placing together.

— WE are informed that the weekly FLOWER SHOWS AND MARTS at the Alexandra Palace will be recommenced during the present month, as Messrs. Jones & Barber have taken the Palace on a long lease, and have engaged Mr. Forsyth Johnson as Superintendent of these displays.

— ON Tuesday last Mrs. Gladstone presented the prizes at the Bow and Bromley Institute to the successful members of the EAST LONDON FLORICULTURAL SOCIETY. There was a crowded attendance, and the show of flowers was a very fine one. After the distribution a handsome bouquet was presented to Mrs. Gladstone, as also a vote of thanks; in acknowledging which, Mrs. Gladstone observed that the East of London, which had been noted for its smoke hitherto, would soon become famous for its flowers.

— THE schedule of the FARNINGHAM ROSE AND HORTICULTURAL SOCIETY announces that the annual Exhibition will be held on the 29th of June of the present year, when liberal prizes will be offered in sixty-six classes for nurserymen, gardeners, amateurs, and cottagers. Thirteen classes are devoted to Roses, the prizes ranging in value from £4 to 3s. Miscellaneous plants, fruit, vegetables, and table decorations are also provided for, and a satisfactory display may be confidently expected to reward the efforts of the enthusiastic Hon. Secretary, Mr. Frank Burnside.

— M. F. BRASSAC of Toulouse has forwarded us a copy of his ANNUAIRE GÉNÉRAL D'HORTICULTURE. It contains a variety of general information, with articles upon horticultural subjects, mostly reprints from French and Belgian periodicals, and a long list of nurserymen, florists, and seed merchants throughout France, arranged alphabetically under their several departments.

— A CORRESPONDENT writing respecting the MARÉCHAL NIEL ROSE observes—"This Rose may be grown very successfully on its own roots. A little over four years since I planted a very small side shoot against the back wall of a Peach house, and two years afterwards we had fully five hundred blooms on the plant. Since then it has grown freely and flowered profusely, and at the present time it is looking as well as ever it did. It is often said this Rose is short-lived, but I do not know of any case where it has died prematurely on its own roots. In many instances I think it is too freely supplied with stimulants and then killed with hard pruning, neither of which are necessary to its well-being. Judicious thinning of the shoots is more likely to produce good results."

— THE annual display of CINERARIAS AT REDLEES, ISLE-WORTH, is always worth a visit, but this year Mr. James appears to have been even more than ordinarily successful in his culture

The flowers are of excellent form and large, but the colours are surprising, comprising a wide range of tints—some delicately soft, others rich and intense. Bright glowing pink, crimsons of many shades, magenta, and deep maroon, with some good purples and abundant intermediate tints, combine to form an array of colours such as could be scarcely excelled. In habit, too, some of the plants are very compact—a very desirable quality, with fine imposing heads of blooms. Several of the named varieties for which first-class certificates have been awarded fully maintain their character. At the time of our visit the most notable of these were Master Harold, bright crimson, and Mr. Little, the latter a peculiar but beautiful tricolor variety, from which Mr. James reasonably expects to obtain a very distinct strain. He also has some other handsome novelties, selections from his large stock of plants, that will probably be exhibited; one in particular we noticed with large, flat, and beautifully formed rich magenta flowers of great substance, which will undoubtedly receive some attention.

— RELATIVE to the career of the late Mr. ALEXANDER OF REDBRAES, whose death we announced last week, we extract the following particulars from a recent issue of the *Scotsman*—"The deceased was a native of Banffshire, but came as a young man to Edinburgh, where he has long been known as a highly respected citizen. For many years Mr. Alexander was senior partner of Dicksons & Co., said to be the oldest seed and nursery business in the city, and indeed one of the oldest of our trading firms. Before retiring from that connection he was, we understand, the oldest representative of the seed and nursery trade in Scotland. He was one of the few surviving founders of the Scottish Arboricultural Society, and for many years acted as Secretary and Treasurer. He also for some time served as Auditor of the Caledonian Horticultural Society. Gifted with a retentive memory, and claiming friends in every part of Scotland, Mr. Alexander gathered a large store of information on Scottish matters which rendered his conversation peculiarly interesting. He was a Director of several of our local companies, but owing to failing health he had for some time before his death retired to a large extent into private life. He was, we believe, the anonymous donor of the fund from which 'the Model ward' in the new Royal Infirmary was furnished, and he has left legacies to various local charities." He was seventy-six years of age at the time of his death, which occurred on the 12th inst., as we have already noted.

— A CORRESPONDENT states that the Spring Exhibition of the MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY, which was held last week in the Town Hall, proved very satisfactory, an attractive display being provided. Orchids were particularly fine; such exhibitors as Mr. J. Broome of Didsbury, Mr. George Hardy of Timperley, Mr. W. Leach of Fallowfield, and Mr. W. Sparkes of Charlwood House, Huyton, Liverpool, staging some handsome specimens from their well-known collections. Other exhibitors were Mr. S. Schloss of Bowden and Mr. Schneider of Cromwell Range, Fallowfield, who contributed attractive collections of flowering and fine-foliage plants. Of nurserymen the principal exhibitors were Messrs. Cutbush and Son of Highgate and Mr. B. S. Williams of Upper Holloway, both firms receiving special awards for their groups. First-class certificates were awarded to Mr. J. Tomkins for *Primula The Queen*, and to Mr. B. S. Williams for *Primula sinensis alba magnifica*.

#### THE STRAWBERRY EVERLASTING (*ASTELMA EXIMIUM*).

SINCE the appearance of a note upon this plant in the *Journal* a few weeks ago we have had many inquiries respecting it, and requesting us to give an illustration showing the general charac-

ters of the plant. In compliance with the desire of these correspondents, and also because it may be of interest to other readers, we have had the accompanying woodcut (fig. 54), prepared from a small spray. It represents the flower heads and bracts of the full size, one of the lower heads being shown in a young state before the central flowers have faded. The attractiveness of the plant depends upon the rich crimson colour of the large elliptical bracts which form a close globular head, in some degree suggestive of Strawberries, and from that circumstance the popular name is derived. The leaves and stems are whitish-green in colour, and thickly clothed with a woolly pubescence.

In some London florists' windows, particularly in Covent Garden,



Fig. 54.—*Astelma eximium*.

these dried flower heads are occasionally seen, being employed similarly to other so-called "Everlasting Flowers." We have not seen a plant in cultivation in this country, though it is said to have been introduced about the close of the last century. The London supply is, we are informed, obtained solely from the Cape of Good Hope, where it is cultivated by some of the local growers.

#### CULTIVATION OF THE CYCLAMEN.

THE Cyclamen when well grown is one of the most useful greenhouse plants we have for winter and spring flowering. The most satisfactory way of obtaining a stock is by seed, and it is best to obtain this from a good firm, as you may depend on obtaining seed that will produce plants worth growing. Before sowing consider when you desire to have the plants in bloom, so that from twelve to fifteen months may be allowed them for growth. To obtain flowers in November and December sow the seed at the end of September or early in October; for January and February sow in November or December; for March, April, and May, sow in January or early in February. It is possible to have the plants in bloom at all seasons of the year, but they are chiefly desired during the autumn and winter.

The first operation is the preparation of the seed box or pan. Place at the bottom a layer of potsherds; then mix the compost, which should consist of three parts mellow fibrous loam and one part of peat, leaf soil, well-decayed cow manure, and silver sand in equal proportions. Place the rougher portions of the compost over the drainage and some finely sifted on the top. Press firmly, allowing an inch from the top of the pan; then sow the seed as evenly as possible, covering it with the fine soil,

watering it well. Place a square of glass on the pot, then remove it to a Cucumber house or propagating frame in which a temperature from 65° to 75° is maintained. If bottom heat can be given the seed will germinate more quickly than otherwise. With proper attention the seedlings will begin to appear in three weeks or a month, but some may be five or six weeks or even longer. The glass should not be removed till the plants touch it, then gradually raise it until it can be dispensed with. As soon as the seedlings have made corms the size of a small pea they should be pricked out into other pans prepared as before, only the soil employed may be rougher. They should be an inch apart each way in the pans. Again assign them a warm place near the glass, keep them there till they are well established, which will be in about two months. Then shift them into 3-inch pots separately, employing the same compost as before, return them to the house, and keep the soil moist. If green fly appear recourse must be had to fumigation or syringing. The plants will grow freely, and should receive their final shift before becoming root-bound. Pots 5 to 6 inches in diameter are suitable, placing a crock over the hole, then 2 inches in depth with broken bones, adding a small portion of Clay's fertiliser to the soil. Keep the corm just above the soil, which must be pressed firmly round it. Transfer them to a frame in an open situation, plunging the pots in coal ashes as near the glass as possible. Shade during the hottest part of the day, and close the frame early in the afternoon. The plants may remain there till the middle of September, then remove them to a greenhouse. If desired to bloom early place them in an intermediate house near the glass. While in bloom a dry atmosphere is necessary, or the colours will run. Mark the best, so that they may be grown into fine specimens the second year.

After flowering remove the plants to a frame from which the frost can be excluded, gradually lessen the supply of water until the leaves turn yellow and fall; then give the plants a rest for five or six weeks, after which they should be shaken out and repotted. The corms should rest on the surface of the soil, then place in the frame again, and the lights may be kept off except in wet weather for the first month until the new growth commences. The soil must at first be only moderately moist, afterwards increasing the supply of water in proportion to the progress of the plants, but until they are in full growth and well furnished with foliage the greatest care must be taken to guard against excessive watering. The reason I believe why so many fail in growing *Cyclamens* is because they allow them to receive a check in their early stages. Another cause of failure is placing them outside in the sun till the corms are dried, and then they will not start freely into growth again.—(Read by Mr. H. Slaney, Florist, Nether Edge, at a Meeting of the Sheffield Gardeners' Improvement Society.)

### THE MOTH ORCHIDS.

RICHNESS and diversity characterise the vegetation of most tropical insular climates, for in such positions exist the chief requirements of vegetable life—heat and moisture, the former being constantly present, but the latter usually most abundant at particular seasons, when the plants grow with extraordinary luxuriance and rapidity. Such a region is that of the Indian Archipelago or Malayia, including the islands of Borneo, Sumatra, Java, and the Philippine group, where a high temperature prevails, which is softened and rendered beneficial to plant life by the humidity arising from a tropical ocean and heavy periodical rains. In consequence of these favourable conditions plants are abundant and diversified, many of the large natural orders prevailing in the tropics being strongly represented. Numerous beautiful species have been found and introduced to this country, but undoubtedly many more remain to be discovered, for large tracts still exist that have not been thoroughly explored by collectors or botanists. From the Philippine Islands in particular we have received among many other plants some handsome Orchids; and though they are comparatively few, their beauty, especially in the case of one genus, would encourage the expectation that others may yet be found equal to, or perhaps surpassing, them in floral attractions. Several species of *Aerides*, *Dendrobium*, *Vanda*, and *Saccolabium* have been obtained thence and are greatly prized, but their charms fade in comparison with the aristocrats of the Orchid world, the lovely *Phalænopsids* or Moth Orchids, which have their home in those islands. Not only do they rank among the most beautiful of their immediate congeners, but in the whole range of flowering plants there are few that equal, and fewer still that in chaste elegance can be considered to surpass, the principal species of *Phalænopsis*. Their claims to attention are not rested upon brilliantly coloured flowers, for pure white and soft tints prevail; but it is the delicacy of these shades, the wax-like substance, elegant form, and durability of the flowers, with broad handsome

foliage and a graceful habit, which entitle them to such pre-eminence.

It is almost needless to say more in praise of the *Phalænopsids*, as they are so well known and so generally admired when in good condition. Unfortunately, however, this desirable result is not too frequently attained; and so it often happens that, accompanying the admiration, we frequently hear the difficulties attending their cultivation deplored as a grave defect—that is, of course, by those who have been unsuccessful with them. On the other hand, some growers' experience is quite the contrary to this, and with little more than ordinary care the best results are obtained—namely, healthy growth and abundant flowers. This is one of the peculiarities of the genus, and is not easily accounted for. I know an instance where two gardeners have charge of establishments a few hundred yards apart. Both are careful intelligent men with a good knowledge of Orchid culture; yet one has very satisfactory *Phalænopsids*, and the other can only keep them alive, though both collections are apparently treated in a very similar manner. Still, taking them generally, there are fewer failures with these Orchids now than there were a few years ago, for their requirements are becoming better known; and though the plants appear to display strange partialities for particular places, yet undoubtedly this is chiefly due to the grower's careful observation of little items in their culture that others might consider of no importance. The habitat of the *Phalænopsids* gives a good indication of their requirements, but when growing under artificial circumstances many facts have to be taken into consideration. A moderately high temperature is necessary in the first place, the house devoted to East Indian Orchids being suitable; but where a structure can be specially devoted to them it is more satisfactory, as the treatment can be regulated with greater precision. This advantage can only be enjoyed where the collections are unusually large and no expense is spared to obtain them in the best condition, as in some nurseries and a few gentlemen's gardens. Where the means and stock are more limited the plants must be grown with other Orchids, then needing a little additional care to ensure their success. They may be even grown in an ordinary plant stove; but though good results have been occasionally obtained in that way, it is not a course to be recommended where there is an Orchid house. However, in the absence of this convenience a few specimens may be tried in the stove if a suitable position be selected. Some have tried cool treatment for *Phalænopsids*, but not, as far as I have seen, with encouraging results: indeed it seems so opposed to the conditions under which they exist in their native haunts that success could scarcely be expected. At the same time the excessively high temperatures which some growers consider necessary, too often accompanied by a corresponding deficiency of moisture in the house, are more hurtful than otherwise. To ensure the health of the plants the temperature in which they are growing should not at any time of the year be allowed to fall below 60°; and from the present month on through the summer—the season of growth—the minimum day temperature should be 70°, allowing a rise above that to 85° with sun heat. The minimum night temperature for the same period may average 5° lower than the first-named, which will also be suitable for the autumn and winter treatment.

As to the method in which "Moth Orchids" are grown, there is little to suggest a preference for baskets, blocks, or pots, as in all they will succeed nearly equally well under judicious culture, but for small plants nothing is better than the shallow pots or small pans now employed in many nurseries, especially in Messrs. Veitch & Sons' at Chelsea. These suit the *Phalænopsids* as well as they do many other Orchids, and being neat in appearance, easily kept clean, and permitting the ready shifting of the plants when necessary, they have much to recommend them, as many gardeners have long ascertained. In the case of either baskets or pots thorough drainage is needful, for the plants being epiphytal are impatient of stagnant moisture at the roots; and further, during growth a very liberal supply of water is required, which renders careful attention to this matter of still greater importance. Clean potsherds must be used freely, the larger pieces at the bottom and the smaller on the surface, which for pots should be within an inch or two of the rim; over them place the compost, consisting of sphagnum moss, a few pieces of fibrous peat, potsherds, and nodules of charcoal, raising it 2 or 3 inches above the rim of the pot or edge of the basket in the centre. Upon this secure the plant, which for some time after the operation will need carefully shading and supplying with water. When established *Phalænopsids* require plenty of light, but cannot endure exposure to the sun, as the foliage is apt to become scorched, thereby both disfiguring and injuring the plant. A light material should be used for the blind, so that it may not cause too deep a shade, also placing the plants on the sunny side of the house if



they are arranged with others either on a shelf or suspended from the roof, where they will be exposed to all the light possible with regard only to avoiding the undesirable scorching already mentioned. Another important point is ventilation, for these Orchids need all the fresh air that can be safely admitted to the house without reducing the temperature too much, or exposing the plants to cold draughts. At least that is my experience, but I am aware that some advocate a comparatively limited ventilation at all times. In regard to the supply of water, it must be remem-

bered that the plants have no pseudo-bulbs to act as a storehouse of nutriment; that the leaves are large and thick, exposing a great foliar surface, from which moisture is constantly evaporating when the temperature is sufficiently high; and that the plants, though elevated on the branches of trees, are exposed to heavy rains during the period of growth in their native habitats. These considerations indicate that water must be given very freely when the plants are growing, and at other times regulating it according to the weather, never allowing them to suffer from an

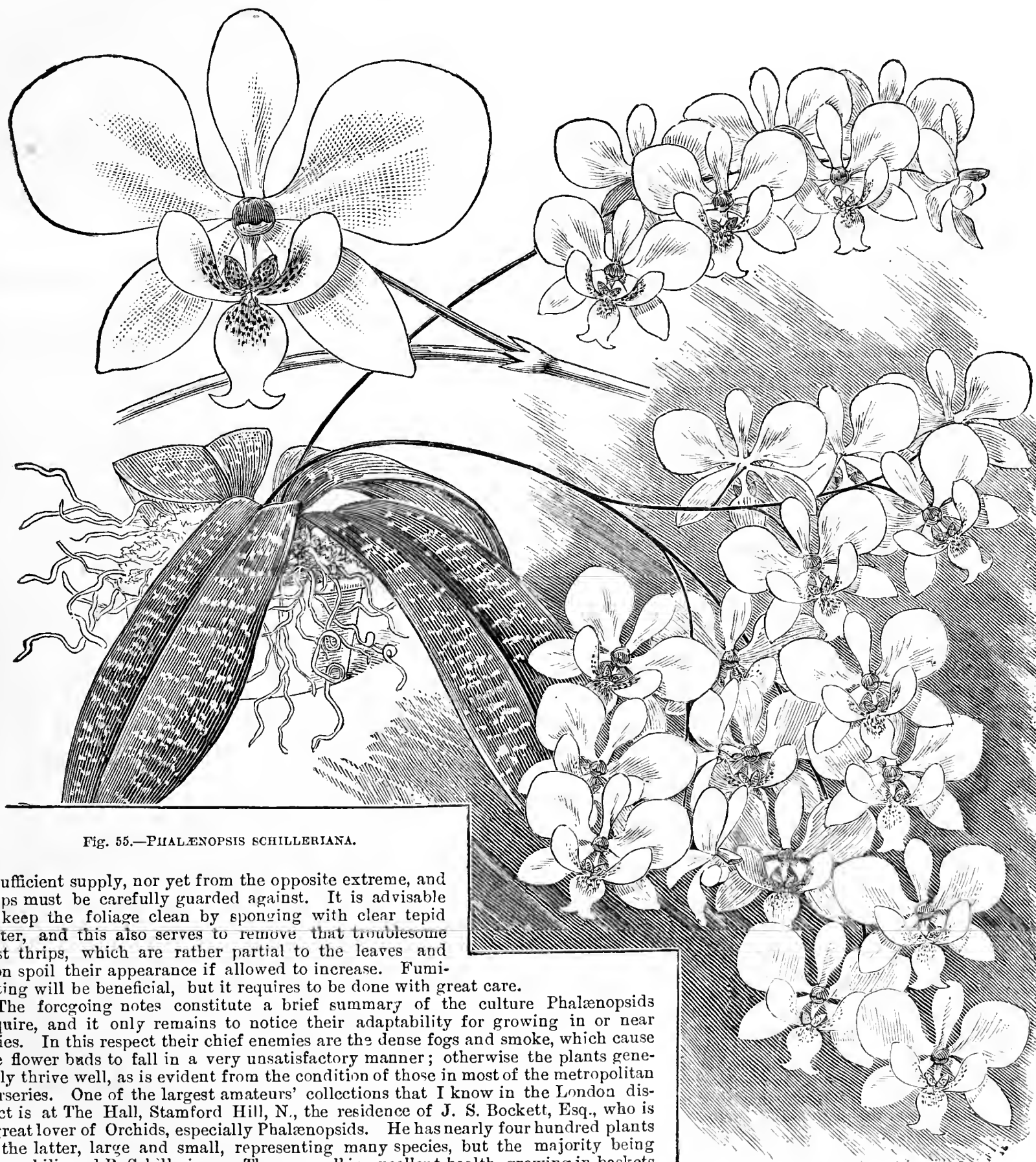


Fig. 55.—*PHALAENOPSIS SCHILLERIANA*.

insufficient supply, nor yet from the opposite extreme, and drips must be carefully guarded against. It is advisable to keep the foliage clean by sponging with clear tepid water, and this also serves to remove that troublesome pest thrips, which are rather partial to the leaves and soon spoil their appearance if allowed to increase. Fumigating will be beneficial, but it requires to be done with great care.

The foregoing notes constitute a brief summary of the culture *Phalaenopsis* require, and it only remains to notice their adaptability for growing in or near cities. In this respect their chief enemies are the dense fogs and smoke, which cause the flower buds to fall in a very unsatisfactory manner; otherwise the plants generally thrive well, as is evident from the condition of those in most of the metropolitan nurseries. One of the largest amateurs' collections that I know in the London district is at The Hall, Stamford Hill, N., the residence of J. S. Bockett, Esq., who is a great lover of Orchids, especially *Phalaenopsis*. He has nearly four hundred plants of the latter, large and small, representing many species, but the majority being *P. amabilis* and *P. Schilleriana*. These are all in excellent health, growing in baskets chiefly, but a few shallow pots are employed. From the vigorous healthy condition of the plants a visitor would scarcely think he was inspecting Orchids growing within five miles of the Mansion House. Possibly something is due to the elevated position; but the gardener, Mr. Ebbage, evidently well understands their treatment, and shows to the best possible advantage what good results may be obtained even in a great smoky city.

The genus is not a large one, the species in cultivation numbering about fifteen, with several varieties and supposed hybrids. Of these the following notes indicate the most attractive or interesting.

*Phalaenopsis amabilis*.—This was aptly named the "lovely" *Phalaenopsis*, and as the first brought to this country it was a good

representative of a beautiful genus. It has bright green, elliptical, broad, thick, flat leaves arranged very closely together in a two-ranked manner, so that there appears to be scarcely any stem. The inflorescence is a raceme, bearing numerous flowers. The sepals and petals are white, the latter larger and more rounded than the former; the lip is three-lobed, white, frequently marked with a few streaks of crimson, orange, and yellow. The flowers are produced during the winter and spring, and last upon the plant for months in good condition; in fact, there are few even among Orchids which retain their flowers so long as the *Phalænopsis*. The first plants which were received alive in England were those sent from Manilla to Messrs. Rolisson at Tooting by Mr. Hugh Cuming, who travelled so much in the Philippine Islands, and made extensive collections both of plants and the beautiful shells to be found there. That was in 1837, and soon after the plants flowered and were figured in several works during the three or four following years. In 1844 Mr. Robert Fortune visited the island of Luzon, and obtained specimens of this Orchid, particularly one, which he describes as "a plant of extraordinary size, having ten or twelve branching flowerstalks and upwards of a hundred flowers." This handsome specimen was purchased of some natives for the extremely moderate price of a dollar. It reached England alive, and was grown in the Royal Horticultural Society's gardens for some time. Since then large numbers have been imported, and the species is now well known to all Orchid growers. The price is now moderate compared with some Orchids, and plants can be purchased for a less number of shillings than they could for pounds some years ago. In connection with the value of this plant it is related that when the Duke of Devonshire first saw a specimen flowering in Messrs. Rolisson's nursery soon after its introduction he admired it so much that he determined to obtain it at any price. The possessors were reluctant to part with it, but the Duke gave them a blank cheque to fill in as they pleased, and they then fixed their price at £100, which might almost be considered moderate under the circumstances.

*P. Schilleriana*.—The most beautiful *Phalænopsis* yet known, for not only are the flowers uncommonly handsome but the foliage is also highly attractive, thus rendering the plant pleasing whether flowering or not. It can indeed scarcely be surpassed in the whole of the great Orchid family—a sufficient indication of its merits to those who do not know it, but they are extremely few at least among Orchid growers, for although it has only been in cultivation about twenty years it is now well and widely known. The leaves are arranged in a similar manner to *P. amabilis*, but they are much longer and broader, marbled or mottled with light green on a rich green ground. The peduncle is frequently a yard in length, branched and on very fine specimens has been known to bear as many as one hundred flowers. These have rounded petals and narrower sepals, all of a fine rosy colour, the intensity of which varies considerably in different plants; the lip is three-lobed as in *P. amabilis*, the lateral lobes rose-coloured, the central white with yellow protuberances at the base, the colour being bluish. English growers cannot claim the honour of having introduced this species, for it was first obtained in 1858 by Consul Schiller of Hamburg from Manilla, where it grows at a slightly higher elevation than *P. amabilis*. The plant flowered two years after, and was then described by Professor Reichenbach, and named in honour of its introducer. Specimens were soon forwarded to England, and early in 1862 Mr. Robert Warner of Broomfield had a plant in flower. Mr. B. S. Williams also flowered one about the same time, and great attention was attracted to the beauty of the species, leading to the importation of as large quantities as could be obtained.

The woodcut (fig. 55) was prepared from one of the plants in Messrs. Veitch's Nursery, Chelsea, which recently made the magnificent display described on page 113. About eighteen hundred flowers were open at one time, and the effect produced by such an immense number will long be remembered by all who saw them. They were mostly growing in the small pans as shown in the engraving, and though the plants had only been imported about a year they were in admirable health, the foliage being beautifully mottled. The figure represents the plant very much reduced, but the single flower is given full size, thus showing its form and the proportionate size of the plant.—L. CASTLE.

(To be continued.)

#### EARLY ROSES.

LAST November we bought a number of Roses for planting in the open air, but potted a dozen of them. For some time after that they were in a cold frame, and early in January they were placed in gentle heat, which caused them to start into growth, and most commenced flowering early in March, bearing fine buds and blooms.

As it is always convenient to know what varieties to grow, I give a list in the order of merit—Innocente Pirola, Madame Alexandra Bernaix, Belle Lyonnaise, Madame Etienne Levet, Madame Willermoz, Madame Falcot, Maréchal Niel, Perle des Jardins, Souvenir de Paul Neyron, Marie Van Houtte, Duchess of Edinburgh, and Céline Forestier. The first named (Innocente Pirola), is a new Rose and one of the best for culture in pots. In colour it is between Souvenir de Malmaison and Gloire de Dijon. The blooms are more pointed than those of the latter, and more acceptable, I think, in every way. It is very free in growth, and promises to be quite an exception to the majority of new Roses in merit. The second (Madame Alexandra Bernaix) is also a very fine Rose, the blooms being large and showy pink in colour. Marie Van Houtte and Duchess of Edinburgh have not done well; and Céline Forestier has been worse still, as it has only made some long shoots with no signs of bloom on one of them. We had a black mark placed against this Rose before. As planted out in a conservatory it has grown vigorously, but the blooms have been few, as all last summer we had not half a dozen clusters from it. Niphetos is not amongst our twelve, as we did not grow it in a pot, but had it been amongst those named above it would have been near the top of the list, as it is a grand indoor Rose at any season and under all modes of culture.—J. MUIR.

#### REVIEWS OF BOOKS.

*Practical Gardener*. James Carter & Co., 237, High Holborn, London.

GUIDES to gardening, from "Loudon's Encyclopædia" and "Thompson's Gardener's Assistant" to those valuable little "Manuals for the Many" published at the Journal office, are now so numerous and so comprehensive in scope as would seem to embrace every possible want of all classes of the gardening community. In Messrs. Carters' "Practical Gardener," which is modestly introduced "to supply reliable information to the amateur in a popular form," we have a work so thoroughly practical, so cheap, and so novel, that we greet its advent heartily, and commend it to the notice of all gardeners and amateurs, for many a pithy hint may be found in its pages on the culture of popular fruits, vegetables, and flowers.

A leading position is given to calendars, the first being devoted to vegetables by Mr. G. T. Miles, who gives excellent advice about vegetable culture and successional cropping, with a useful enumeration of varieties, but his sentences are somewhat involved, occasionally so much as to render his meaning obscure and to mar the effect of his otherwise valuable teaching. In "Flower Gardens and Pleasure Grounds," by Mr. T. Comber, we have concise and timely instructions for each month's work, and equally concise reasons given for most of it. Very forcible and valuable hints are given about watering, a matter to which by far too little attention is given. Many a failure might be traced to carelessness in this simple matter. Mr. T. Baines introduces his calendar of plant culture in the conservatory, greenhouse, &c., with brief notes on soil, potting, water, heat, light, air, and shade as the most important factors to success in this department. The Monthly Notes, though somewhat lengthy, are all to the purpose, embodying clear cultural directions, hints as to ventilation, the destruction of insect pests, propagation and culture of young stock for a successional supply, syringing, the value of fertilisers, and importance of cleanliness. "A Year's Work Under Glass," by Mr. J. Sheppard, is principally devoted to fruit culture, and is evidently written by an able practical man, some of whose sentences would, however, be none the worse for a somewhat more stringent application of editorial polish. "The Fruit Garden," by Mr. A. Bridgman, contains a useful list of sorts; but I cannot agree with him in his recommendation of horizontal training, which is quite superseded by the palmette verrier; and I regret to find no mention of that most useful of all forms, especially to amateurs—the diagonal cordon. Papers of considerable value on special subjects have been contributed by some of the best cultivators and writers whose names have been published in your advertising columns, and at the end of the volume is a useful chapter for amateurs on "Suburban Gardening." All who possess the book will, I think, agree with me that it is an excellent shilling's worth.—EDWARD LUCKHURST.

*On the Art of Gardening*. By Mrs. FRANCIS FOSTER. London: W. Satchell & Co.

THIS little work contains some pleasant reading upon the history and associations of gardening, with many poetical quotations and classical allusions, but is scarcely calculated to be of any great assistance to a gardener either in the theory or practice of his art. The volume, however, contains some hints that may



prove useful to amateurs. In an appendix some directions are given for forming and planting flower borders, and there sundry errors in the spelling of plant names occur. For instance, "Lithospermum" is repeated many times, while such singularities in nomenclature as *Camp Glomerata*, and *Yellow gagea*, are noticeable. The English and botanical names also appear to be given indiscriminately, so that some of the lists are strangely mixed. The garden of the writer has evidently been a source of pleasure to her, and her object appears to be the commendable one of making other gardens pleasant too.

*Our Kitchen Garden.* By TOM JERROLD. London: Chatto and Windus.

A WELL-PRINTED and neatly bound volume devoted to the culture and cooking of vegetables, the culinary recipes and particulars constituting the chief feature of the book. An account of the principal vegetables is given, Parsley being, however, strangely omitted, comprising brief historical notes, and an outline of culture, and then the various modes in which they may be prepared for the table. The author strongly advocates a diminution in the consumption of animal food, with a corresponding increase in the employment of vegetables.

*The Fields of Great Britain.* By HUGH CLEMENTS. London: Crosby Lockwood & Co.

THIS, as the title page states, is "a text book of agriculture for elementary and advanced students," and appears to have been carefully prepared in regard to the range of subjects treated upon and the accuracy of the facts given, but necessarily in an elementary manner. It contains particulars of the chemical composition of soils, with chapters devoted to the chief operations of the farm, and explanations of the principles upon which they are founded. It is neatly bound and printed, and will prove serviceable to those who are entering on the study of agriculture with a view to passing the Science and Art Examinations in that subject.

*The School Garden.* By T. WILKINSON. Harrow: W. J. Overhead, "Gazette" Office, High Street.

THOUGH only a modest pamphlet of twelve pages, this little production contains some valuable hints and suggestions upon extending the knowledge of gardening and agriculture among the masses. The necessity for this extension, the writer argues, is evident from the enormous amount annually paid by this country for imports of agricultural produce, when there are "hundreds of thousands of acres of good land entirely out of cultivation—absolutely waste." He then proceeds to state his scheme for effecting some improvement in this unsatisfactory state of affairs, by the practical teaching of horticulture in schools, to which plots of ground should be attached, as in Switzerland and some other countries. If the scheme could be put in practice it would unquestionably prove advantageous, and we therefore commend the pamphlet to the consideration of those interested in the subject of which it treats.

#### TEA ROSES.

I HAVE great pleasure in answering "WYLD SAVAGE'S" challenge, especially as it gives me an opportunity of bearing testimony to the beauty of his Tea and Noisette exhibits a few years ago. His enduring fondness for these most exquisite of all Roses in well-nigh every article he writes speaks for itself.

My friend deprecates prizes being offered for so many varieties of Teas and Noisettes as twenty-four and eighteen. Thus far I quite go with him. I should say every experienced rosarian would likewise. But on the main point of his article, Whether twenty-four good Teas and Noisettes could be named, nearly half of which would not be out of bloom by the beginning of July, I answer, Most certainly they can; and, what is more, I can supplement that number with almost as many again, which, though not so distinct and certain, can when wanted be advantageously used to make up a collection.

The great secret I hold to be, Never grow Tea and Noisette Roses where climatic or other conditions are unfavourable to their health and luxuriance. The difficulties and expense under such circumstances attending their culture is so enormous, and the degree of success ever attained so slight, that the game is not worth the candle. On the contrary, where climate, soil, and neighbourhood are found to be suitable no class of Roses is easier to grow; for when once established, fine exhibition blooms may often be cut from old-established plants—aye, worthy of the famous Colchester, Salisbury, Maresfield, and Torquay nurseries.

The same remarks hold good about many irrepressible rosarians, who vex their lives out year after year by uselessly trying to grow the strongest H.P. Roses in the immediate suburbs of manufacturing towns. I never could understand such infatuation. The Rose of course reigns supreme among flowers, but a badly grown Rose has the same depressing effect upon me as the sight of a deformed or sickly child; and when such hardy, varied, and lovely flowers can be grown—and perhaps grown in all the greater perfection from the presence of carbon in the air—as the Auricula in spring, the Carnation and Picotee in summer (rivals of the Rose at least in scent), and the Chrysanthemum in autumn, even up to winter's storms and frost, it is unaccountable how much loving care is wasted on the Rose only to end in certain disappointment.

I must ask pardon for this digression, for the lines of "WYLD SAVAGE," I am well aware, have fallen in quite sylvan scenes until very lately; yet I cannot understand in the few varieties he mentions of Teas and Noisettes how such universal favourites as *Tea Marie Van Houtte* and *Noisette Madame Caroline Kuster* were left out. Surely so critical an observer must often have noticed them as the brightest gems in Mr. Baker's great collections.

It is very noticeable in Teas and Noisettes, more so than in H.P.'s, that some varieties thrive vigorously in certain districts, while in others they are poor growers, shy bloomers, or unshapely in flower. I can generally grow *Noisette America* as large as *Souvenir de la Malmaison* without that Bourbon's flatness and coarseness. With me also *Tea Comtesse de Nadaillac* grows so different in shape, size, and hardiness, and of so extraordinary a colour under glass and out of doors, that when seen exhibited elsewhere it is quite a different flower. "WYLD SAVAGE," like that excellent rosarian Mr. Charles Turner, compares *Madame Bravy* (syn. *Madame Sertot*) with *Alba Rosea*, a fact which, if correct, goes far to prove the truth of my foregoing remarks.

As regards *Cheshunt Hybrid*, if shown in full bud, and as this hardy useful Rose is seen in spring or early summer of a glossy soft pink colour, the most fastidious could not object to its presence in any collection of Teas and Noisettes. As it is generally shown later on in the season—globular in shape, and of a dingy colour, the Rose is wholly out of place; but so under similar circumstances is *Maréchal Niel*.

The only remark I would make about the *Stapleford Roses* is, that time only makes them more unlike their catalogue descriptions, and less worthy of a place among such pure-blooded Teas and Noisettes as I now subjoin.

*List of Twenty-four Teas.*—*Alba Rosea*, *Anna Ollivier*, *Belle Lyonnaise*, *Catherine Mermet*, *Devonensis* or *Climbing Devonensis*, *Comtesse de Nadaillac*, *Comtesse Riza du Parc*, *Jean Ducher*, *Madame Berard*, *Madame Bravy*, *Madame Camille*, *Madame Céline Noirey*, *Madame Hippolyte Jamain*, *Madame Margottin*, *Madame Welche*, *Marie Guillot*, *Marie Van Houtte*, *Niphotos*, *Monsieur Furtado*, *Perle des Jardins*, *Souvenir d'Elise*, *Souvenir de Paul Neyron*, *Souvenir d'un Ami*, *Rubens*; and *Noisettes*—*America*, *Céline Forestier*, *Cloth of Gold*, *Lamarque*, *Madame Caroline Kuster*, *Maréchal Niel*, *Triomphe de Rennes*; supplemented by the following *Teas*—*Souvenir de M. Pernet*, *Mdlle. Innocente Pirola*, *La Boule d'Or*, *Eugène Desgaches*, *Elise Sauvage*, *Adam*, and *Madame Lambard*.—HEREFORDSHIRE INCUMBENT.



#### KITCHEN GARDEN.

A PART of the plantation of Horseradish should be lifted annually so as to have a good supply of this useful root, which should have more attention than is usual in private gardens. It can be lifted by trenching the ground and removing all small pieces of roots, selecting those fit for use, which may be laid in on a north border, reserving the thin pieces 15 inches or more in length for transplanting. The ground should be deeply trenched and have a liberal dressing of manure or decayed vegetable matter, the latter being perhaps the most suitable; when this is done plant the roots in rows 18 inches asunder, and about 9 inches apart. Ground intended for *Seakale*, also for fresh plantations of *Rhubarb* and *Globe Artichokes*, should be prepared at once by manuring and trenching. *Globe Artichokes* have been much injured by the severe weather. Do not remove the ashes or other protective material from the collars, as severe weather would



seriously injure the plants. If not already done preparation should be made for planting Asparagus by having the ground well manured and trenched, giving preference to ground already well enriched and of a good depth of rather light loam; if heavy, a good proportion of sand and old potting material should be mixed with it. Planting may be performed at once, but is best done when growth is commencing, selecting two-year-old plants. Remove the soil entirely a foot wide and 3 inches deep, so that the roots can be laid out evenly, covering with fine soil. If the roots are to be taken up for forcing the plants may be placed 18 inches apart and 2 feet distance between the rows, omitting every third row, whilst for permanent plantations the rows may be 3 feet and the plants 2 feet apart. Planting early Potatoes should be proceeded with without delay. Strawberry plantations must be examined and all weeds forked out, pointing the spaces between the plants lightly, and not so deeply as to disturb the roots. Where it is intended to make new plantations this spring the ground should be prepared by a dressing of manure and by trenching. If good well-rooted runners of last year are at command defer planting until growth takes place, lifting with a good ball of earth to each, firming the soil well about them, and giving a good watering if the weather be dry. Plants that have been layered in small pots are also suitable.

*Forcing Department.*—Shift Tomatoes into larger pots when they need it; 8-inch pots are sufficiently large for early fruiting, and ample to obtain strong plants for prepared borders or pots. Pot firmly, employing turfy loam with about a fourth of old manure. Train with one stem, removing all laterals, and have the plants near the glass to encourage sturdy growth. Make a sowing between now and the end of the month to raise plants for cultivation in cool houses, pits, and training to the walls outside. Ventilate frames freely on all favourable occasions, especially those containing plants raised in heat for outside planting. Potatoes advanced for taking up should be kept rather dry to improve their quality. A sowing of French Beans made now in a pit will come in in advance of those in the open. Continue to make sowings of these in pots or pits where there is sufficient heat to maintain the succession.

#### FRUIT HOUSES.

*Peaches and Nectarines.*—Tying and regulating the shoots must have strict attention, avoiding overcrowding them or tying too tightly. Any very strong shoots may be stopped so as to equalise the growth. In the earliest house the stoning process will soon be completed, when it will be necessary to regulate the crop, reducing it to one fruit to each square foot of trellis covered by the trees. After the stoning is over the inside border must be well supplied with tepid liquid manure, and the surface mulched with about 2 inches of short manure, keeping it well moistened, syringing the trees twice a day in bright weather, but only once when the weather is dull. The temperature after stoning may be increased to 65° or 70° at night and 70° to 75° in the daytime, with an advance of 10° to 15° with sun heat. In the succession houses thinning the fruit must be attended to where too thickly set. Disbudding also will need early and repeated care, attending to tying-in the young shoots as they advance, being careful to regulate them so as not to be too crowded. Fertilisation of the blossoms in later houses should be attended to unless bees frequent the trees, when they will perform this work better than any artificial treatment.

*Figs.*—The earliest Figs will be swelling rapidly, and careful attention must be given in supplying water, especially to trees in pots, and if the pots are well drained there is little danger of an excessive supply. Continue 60° to 65° as the night temperature, and 10° more by day, but with sunless weather a few degrees less will be more beneficial to the trees. When the weather is favourable abundant ventilation will be necessary. Syringe twice a day, proportioning the moisture in the house in accordance with the increased light and sunshine. Fig trees in houses will be making rapid progress, hence the necessity of frequent attention to stopping and thinning the shoots. Attention must be given early to this, and the stopping of the shoots attended to as soon as the fourth or fifth joint is visible. Do not hasten later houses on too rapidly, but maintain a moderate degree of heat and moisture, with a liberal supply of air when the state of the weather permits, so as to secure sturdy short-jointed wood.

#### ORCHARD HOUSE.

Apricot trees in most localities in these structures are now flowering, and will require abundance of air whenever the state of the weather will admit; and should dull damp weather set in during the time the trees are in flower it is advisable to facilitate the setting by the use of a camel's-hair brush, which should be well filled with pollen from the anthers repeatedly and placed upon the stigmas. This, however, is not necessary when the air is dry, as the shaking of the trees sharply when the air is still will distribute the pollen effectually, or wind will effect the same purpose. When the nights are cold, as is usual after bright days, it is advisable to close the ventilators somewhat early in the afternoon, so as to retain as much as possible of the sun's heat as will prevent an injurious depression during the night. Syringing the trees must be discontinued until the frost is fairly set, when it should be resorted to in order to keep down insects, morning and evening, omitting the afternoon syringing when there are indications of frost or a low temperature at night. Water must be afforded trees in pots plentifully, also trees planted out. Allowing the soil in which fruit trees are growing to become too dry at any time during growth is very injurious, and should be carefully guarded against.

#### FLOWER GARDEN.

Operations in this department have been retarded by the wintry weather, and unless alterations are pushed forward vigorously there will be difficulty in having Box edgings and transplanted trees established before dry weather. Where large breadths of lawn have to be laid down measures should at once be taken to have it properly prepared and levelled. Before sowing the seed the surface must have a good tilth, and be firm so as not to admit any after-settling. The margin should be laid with turf 9 inches to a foot wide. Complete as soon as possible the planting of deciduous trees and shrubs. Press forward the pruning and training of Roses and other trellis plants, seeing that the shoots are not overcrowded, and laying in the strongest and best ripened. Protection afforded the tender wall plants and Tea Roses may now be removed, cutting out the weak branches of the latter, leaving only the strongest and best situated, shortening back only to well-ripened wood. Prune the Hybrid Perpetual Roses, thinning out the weak and old wood, shortening back the healthy wood more or less according to its strength. The surface of the beds should be pointed over, and be well mulched with short manure, especially where the soil is light. Many Roses do well on their own roots. Cuttings of Roses that have been forced and have the wood tolerably firm strike freely in brisk moist heat, the cuttings being inserted as the plants cease blooming. Pruning most evergreen shrubs may now be safely performed. Lawns will require well rolling, also walks. Any patchy or mossy places on lawns should have the surface well stirred with a rake, covered with fine sifted soil, and sown with grass seeds, lightly raking them in, and well rolled. Mossy lawns and where the grass is not sufficiently free in growth should be dressed with soot and wood ashes, applying the dressing at the rate of a peck per rod at once.

#### PLANT HOUSES.

*Stove.*—Increased length of day should be accompanied with more heat. The temperature now should be 65° to 70° at night and 70° to 75° by day, advancing to 80° and 85° with sun heat. Ventilate carefully, not allowing cold air to be admitted by the side lights directly on the tender foliage, but a little ventilation at the lower part of the stage may be allowed in the hottest part of the day. A more humid atmosphere will be necessary, which should be secured by damping available surfaces in the morning and syringing the plants in the afternoon. *Æchmeas*, *Billbergias*, *Gesneras*, *Tillandsias*, &c., should have a light position so as to insure their free flowering. *Hoyas*, such as *H. imperialis*, should be grown where they will not receive a great amount of atmospheric moisture, or the flowers will fall before opening. Cuttings of *Euphorbia jacquiniæflora* for early flowering may now be inserted, selecting those 4 to 6 inches long, taking them off with a heel; insert in sandy soil, and place in bottom heat. *Poinsettias* should be kept dry for a time after flowering, but not so as to cause the wood to shrivel. *Centropogons* also should be given a season of rest and have the flowering shoots cut back a little, and

when growth is pushing out back to within a couple of eyes of the base. Epiphyllums that have flowered should be potted. They succeed in turfy loam with a little well-decayed manure, and should not be overpotted; grafted plants do not need much root space. When it is desired to increase the stock of Allamandas, Bougainvilleas, Clerodendrons, and other quick-growing plants, cuttings can be taken of the shoots when 6 or 7 inches long with a heel, and inserted in small pots of light sandy soil in a close moist heat. Croton cuttings 8 to 10 inches long now inserted will strike freely in brisk moist heat. The tops of any tall Dracænas should also be taken off, potted, and treated similarly. The old stems laid in open material and kept moist will produce shoots with roots freely, and when sufficiently large should be detached and potted. Cuttings of Aphelandras, Gardenias, Ixoras, Rondeletias, and similar plants taken off with a heel, being careful not to injure the bark, and inserted in sandy soil, will strike better now than later in the season, and if kept growing make useful plants by autumn. Amaryllises are producing their flower scapes, and should be assisted with tepid weak liquid manure. Gloxinias started some time ago may now be shifted into larger pots, and be placed near the glass to keep them sturdy. Pot another batch, and start in gentle heat.

## THE BEE-KEEPER.

### DISCUSSION ON MR. LYON'S PAPER AT THE CONVERSAZIONE OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

EXPERIMENTS ON HIVE SIDES, BY MR. CHESHIRE.

BISHOP TOZER, occupying the chair, said he must express his thanks to Mr. Lyon for the wonderfully clear way in which he had put his theory before them. The thing they had to consider was how they could best photograph what they had heard and bring it before the intelligence of the labouring classes. He invited Mr. Cheshire to begin the discussion.

Mr. Cheshire said he thought Mr. Lyon had worked out his hive with the materials to which he had limited himself with a good deal of ingenuity, and that nothing seemed to remain to be suggested which would not add to the cost. If he said anything which would tend to show that the hive under discussion was not perfect he must not be understood to be detracting from the value of the good work Mr. Lyon had in hand; yet with the expenditure of very little more money the hive might be made much more serviceable, especially for winter, than in its present form; but before explaining how he would refer to one or two points occurring incidentally in the paper read. Mr. Lyon had spoken disparagingly of distance tacks, but he ventured to predict that they would hold their own very much longer than the broad-shouldered frames, which were unconquerably inconvenient in several directions, always getting fixed, and only removeable by a wrench most irritating to the bees; while the more usual form of frame on a metal runner admitted of slipping backwards and forwards half a dozen at a time in the readiest manner. [Mr. Hooker.—These broad shoulders are always shrinking and swelling, and so are always either too tight or too loose.] The question also had been raised whether pitch used for waterproofing would be a success; but he could assure Mr. Lyon that the plan he had devised and first suggested in "Practical Bee-keeping" seven years before had been most serviceable to cottagers, as he had often been able to notice. It was only necessary to cover roughly with pitch the wooden article to be waterproofed and then spread paper over it. The outside of the paper was now pressed down with a heated flat iron. The running pitch settled into all cracks and soaked the paper, preventing the weather from afterwards affecting it, and preserving it for years. Mr. Cheshire said that the main objection he should make to Mr. Lyon's hive was the thinness of its walls. Nothing was really more essential than high non-conductivity; and many so-called cheap hives, failing here, had much to answer for [hear, hear]. He had lately had a correspondence with a gentleman of the sister island upon this very point; and the result had been a determination on his (Mr. Cheshire's) part to put the whole thing to the test of experiment, the results of which he now presented to the meeting. (Mr. Cheshire illustrated his remarks with a number of boxes of different makes.) He said, I have here a number of tin chambers, all capable of holding 12 ozs. of water. I placed these in the several boxes before us after filling them with water at 200°, and exposed them under equal conditions, noting carefully the times occupied in each case by the water in falling through a certain number of degrees of temperature. This very delicate thermometer was used, and the calculations were made according to Newton's law of cooling, which, applied to our purpose, is in effect that temperature changes in direct proportion to the difference between

the temperature of the body under experiment and the surrounding air. I found that if the non-conductivity of the single hive side of five-eighth-inch pine be represented by 1, that of the double side, as we have it in this second box, with an inch of dead air would be represented by 4. I now proceeded to compare this dead air space with the same space packed with chaff, and found that this in preventing loss of heat was twice and a half as effective as dead air, or in other words that its non-conductivity should be represented by 10. I had foreseen the superiority of the chaff to the air space, but was not prepared for so great a difference. It has been argued air is a better non-conductor than any solid substance, and therefore it is better than any form of packing; but the fallacy lies in this, that the so-called dead air is not dead but circulating. It rises against the inner skin of the hive and falls where it touches the outer, and so is ever acting as a distributor of heat. In the same way a man in bed might argue that the air is a better non-conductor than the bedclothes, therefore he would say I shall be warmer without them; but universal experience contradicts the supposition. The bedclothes are useful because they prevent the circulation of air, and that next the body, being warmed, is imprisoned instead of passing away for cold to take its place.

The advantage of a non-conductive packing being proved I now asked whether chaff was the best material at command for this purpose, and cork dust as used for packing Spanish Grapes at once occurred to me as a waste product to be had generally for the asking, and trying this I found that it was much more effective than chaff, giving me a non-conductivity of 14 instead of 10. I had now a hive side three and half times as good as the air space and double skin of wood, and which has for the cottager and amateur this great advantage, that while accurate carpentry is needed to secure dead (?) air, the cork packing makes the air practically dead, even if the wood joints be most defective in their fit. The cottager with very little trouble could convert the hive as shown by Mr. Lyon into a cork-packed one thus:—Having secured a second box so much larger than the one used for the hive body that the latter would go into it with a space of an inch or so between them, he would complete his hive but omit the alighting board; and now, putting the former into position, would make a little wooden bridge, which would act as a tunnel, permitting the bees to pass from the inner box through the outer one into the air. Cork dust would now be somewhat tightly packed between them and covered above by wooden slips, when the cottager would possess a hive superior for wintering to the most costly ones now in common use. The bottom would be a fixture, but this would be no disadvantage in such a hive as would then be. With hive sides made as described small lots of bees may be wintered with success almost incredible to those using thin hives only. A teacupful of bees placed on two frames in a twin hive 3 inches thick and chaff-packed has gone on well since the end of October till now, the queen breeding continually on the frame against the division board. Five other nuclei I have similarly wintered with no casualty. In thin hives the sides are too cold to permit the bees to touch them in hard weather, so that they are driven to remaining in the middle of their frames exposed on all sides, while they are often lost in detachments because they cannot get from comb to comb; but in these they winter by preference against the hive wall, and are thus only exposed on one side, while they close the frame ends for themselves, and can pass always freely from comb to comb without a possibility of getting separated from one another. The advantage may be seen at once by stating that a thin wall would pass as much heat through it in a week as a cork-packed one would in three months; and that if we take the heat of the cluster as 65° Fahr., a little calculation based upon Newton's law (which though lately proved not absolutely accurate for extreme temperatures is sufficiently so for such as those with which we have to do), we shall find that my hive side will be as bearable to the bees with an external temperature of 20° as that of 1-inch pine would be with the outside air at 59°. Mr. Cheshire added, I have not made any experiments in reference to straw. Of course the test apparatus must be made accurately to give data of any value, and this involves a good deal of cost, but notwithstanding I do not mean to leave the straw untried.

Mr. Cowan said, Of course their object was to teach cottagers to keep bees on the most improved system. He questioned very much whether they were really doing very much good in giving them a very cheap hive like this. The objection he had to the hive shown was the thinness of its sides, but of course it would be in a great measure got over if Mr. Cheshire's plan were adopted. He was very much interested in the manner Mr. Lyon manufactured those frames, but he was very much afraid the ingenuity displayed was more than the general cottager in England could be accredited with. If the Association desired to do good in this matter it would be well of them to have their frames made and supply them to cottagers at a cheap rate. Of course all had their crotchets; Mr. Cheshire had distance tacks, but he had nothing. Anyone who had practised a little would be able to do just as well without distance tacks. Another objection he had to shoulder frames was the propolisation. He did not object very much to the size of the frames, but he should like to see them much longer than they were in the specimen hive, the reason being that the queen bee was induced to spread out her brood on one frame in early spring much more rapidly than she would if she had to move from one frame to another; therefore he preferred the longer frames, and the depth might be a little less than those shown



by Mr. Lyon. Beyond these objections he had very little to say against the hive. The entrance to the specimen hive he noticed was only 3 inches and three-eighths of an inch in depth. In a hive of the same capacity he had 8-inch openings, and at times he found that hardly sufficient when he had raised the hive to increase the opening. He should be afraid so small an opening would suffocate the bees. [Mr. Cheshire.—My hives have 8-inch openings.] Mr. Cowan said now that he had disposed of Mr. Lyon's hive he should like to say a few words upon what Mr. Cheshire had been speaking about, and he was sure the Association's thanks were due to that gentleman for his experiments. For the last two years he had been making experiments with chaff hives. Although he has not carried his experiments to the extent Mr. Cheshire had, he had found bees winter infinitely better in chaff hives than they did in hives with dead airspace. He had reduced all his hives to six frames for wintering, and he had tried two frames only with perfect success. He had a hive of two frames, in which the queen had been breeding all through the winter. He did not think she had ceased at all, but of course there was only a small amount of brood. This hive had been fed with peaflour candy. The bees had had nothing to live upon but this all the winter, notwithstanding which they were no less in number than before. With regard to the snow, he found on the 18th January his hives were covered in snow to the depth of 6 feet. He had heard that many bee-keepers removed the snow, but he did not do so, and the bees did not suffer any inconvenience. His reason for adopting this course was that when in Russia he noticed the hives were sometimes covered to the depth of 8 or 9 feet, but the bees were never disturbed, and the losses were few. As soon as the late severe frost broke up he examined his hives, and was pleased to say that not one of them had suffered. So that chaff hives certainly had an advantage over other hives filled with dead air space.

The Rev. G. Raynor said his hives, occupying a very exposed position, were nearly filled with snow on the 18th January, but he succeeded in transferring them to other hives with very little loss. The hive shown by Mr. Lyon was just the kind of thing they should introduce to the cottager. In the course of Mr. Cheshire's remarks it occurred to him whether it was really advisable to keep bees so much warmer during the winter months, and whether it would not encourage breeding at a time when the queen required rest. The advanced American bee-keepers all appeared to approve of the chaff hives, but it had occurred to him whether the advantage was as great as would appear at first sight.

Mr. Baldwin asked if it would not be an improvement to Mr. Lyon's hive to have the floorboard protected in order to prevent the water drawing under. This could be done by making plinths. He had been amused with Mr. Lyon's ingenuity, but he believed it was pretty well conceded that distance racks were much better than the wide shoulders.

Mr. Cowan said, As to whether it was advisable to keep bees at a high temperature in winter, if the bee-keeper did not help them they would only have so much the more to do for themselves. The object of the bee-keeper should be to keep his stocks as quiet as possible, so that less food might be consumed. A cluster of bees should be kept at 65°. He only kept his queen bees two years; they were in full profit in the second year, after that he got rid of them. If the queen bee were kept breeding throughout the winter her breeding power was exhausted before the third season. Mr. Baldwin did not think there was sufficient ventilation in the top of Mr. Lyon's hive. Mr. Cheshire argued that there was no fear of bees becoming too warm. They regulated their temperature by their breathing through their spiracles. The more heat they had to provide the more they were exhausted. They became quiescent if little heat was demanded of them; but intense cold, if they were imperfectly defended, caused them heavy exertion and great exhaustion. Hibernation would explain the matter. Bats in cluster during the winter in ordinary low temperatures breathe but very little, and consume the store of material within them but very slowly, and as the temperature falls they become more and more dormant up to a certain point, but this being passed dormancy would soon lead to death, and then the increased cold renders them more active. The breathing is quickened and the store within more quickly oxidised in order that temperature sufficient to maintain vitality may be preserved. In like manner with bees, apart from the exhaustion incident to the feeding of brood, the measure of heat necessary to be produced is the measure of wear, and the measure of consumption of store likewise. Mr. Martin said that he as a cottager had made and used chaff hives with considerable success.

Mr. Lyon replied, stating that he thought his hive could be provided with most of the matters suggested without difficulty. The usual vote of thanks terminated the proceedings.

### THE INTRODUCTION OF BEE CULTURE INTO THE ISLAND OF CEYLON.

[From the "Ceylon Observer," January 26th, 1881, communicated by ALFRED NEIGHBOUR.]

DURING a short stay in Ceylon I have made diligent inquiry in this part of the island regarding the honey bee found here, and have also endeavoured to learn whether any bees were kept in hives or not. In the vicinity of Galle I found no bees except

the wild bees of the Jungle. When asked why they did not keep bees, the natives invariably replied, "It is too much trouble." But I do not think they know how to manage these insects. I was told that in the interior bees are kept in earthen pots or jugs, a statement which was, however, contradicted by most persons with whom I talked.

There is no reason why a region so productive as the island of Ceylon, and so well adapted in every way to the raising of bees, should not yield annually honey and wax to the value of many thousand pounds sterling. In the United States of America this industry is still in its infancy, improved methods in bee culture not having obtained in all parts and the "field" not being one-tenth occupied; yet the annual honey and wax product of that country exceeds one million pounds sterling, and tons of pure nectar are yearly shipped to Europe, much of it being sold in English markets at 4½d. to 6d. per lb. One weekly publication and six monthlies are devoted to bee culture in America. Those familiar with the condition of agriculture in Great Britain and Ireland admit that the industry is sadly neglected, yet moveable-comb bee hives with improved methods are gaining ground, and England has one journal wholly and another partly devoted to the interests of bee-culturists.

About a year ago I came to the island of Cyprus mainly for the purpose of rearing and sending to European countries and to America queen bees of the highly valuable race found on that island. Among the Greek and Turkish peasants of Cyprus I found a system of bee-keeping which, though far behind the modern improved methods, is still superior to the cruel plan yet followed largely in many of the countries of Europe, notably in France and even in England—namely, the barbarous practice of brimstoning the bees to obtain their honey. The native bee-owners in Cyprus place the bees in clay cylinders, some of which are baked, others sun-dried, and these are then piled up and covered with a roof, or embedded in the walls of the houses. The cylinders, which are about a yard long and 8 or 10 inches in diameter, have their ends closed by stone disks plastered in with clay, a small entrance hole being left the bees at the front end. When the time for taking the honey arrives the peasant bee-keeper removes the rear disk, and having smoked the bees from the rear combs cuts out a portion of the latter, leaving the bees, however, some combs of honey for their subsistence until the next gathering season arrives. According to the books of the collector of tithes the number of hives of bees kept in Cyprus in 1879 was 31,432, and the sale of honey and wax forms no inconsiderable item to the peasant owner of bees.

If that poor, barren, rocky island, Cyprus, successively robbed by various governments and rulers, and for more than three hundred years under Turkish misrule, could constantly derive benefit through the culture of bees, surely Ceylon under fostering Britain's care can show a result a hundredfold greater. That Cyprus in its flourishing days, before it was so nearly stripped of its forests, yielded much better results in this direction, is shown by the figures given me by the officer mentioned above, who stated that there formerly existed on the island 200,000 hives of bees. In the scattering of pollen from flower to flower, and consequent complete fertilisation of the blossoms, insuring a larger yield of fruit or seeds, the bees play no unimportant part. Here, then, is an industry which should go hand in hand with fruit-growing, Coffee-planting, Cotton-raising, &c., and should add to the wealth of Ceylon by putting into a marketable form the nectar which now "wastes its sweetness on the desert air."

The Dutch Government, seeing the advantages likely to accrue through the cultivation of bees in Java, sent to that possession several years ago a native of Holland, commissioning him to transport from Europe colonies of the Italian and Cyprian bees, and to superintend their introduction into that island. If this undertaking has not been successful it is only because the Government referred to was so unfortunate as to have selected for the work a man lacking the necessary practical experience and qualifications. The undertaking has, however, by no means been relinquished, and I feel safe in predicting that living colonies of the species *Apis mellifica* will soon be landed in Java, having myself brought safely as far as Ceylon seventeen colonies of Cyprian and Holy Land bees which are to be taken to that island.

For the island of Ceylon the rude method of keeping bees practised in Cyprus and the adjacent Mediterranean countries would be preferable to no bee culture at all, yet as wood is here abundant hollow logs might be sawed into suitable lengths, a board nailed over one end for a cover, and the hive thus formed placed upon its open end on a stand a few inches from the ground; an auger hole bored through the board cover would permit the bees to enter a box placed over it, and there deposit surplus honey. When filled at the end of the honey season the box can



be removed without disturbing the bees in the body part of the hive, or boxes of about 2000 inches capacity can be treated in the same manner. Hiving the bees simply consists in shaking the cluster from the tree upon which it has lodged into the box or into a basket, and then pouring it down before the hive. Most of the natives have little fear of bees; moreover, when bees are about to swarm it is their instinct to gorge themselves with honey, and when their honey sacs are thus filled they never sting unless pressed in the hand or under the clothing.

The simple methods indicated above are surely not beyond the comprehension of the natives of Ceylon; indeed, I believe an additional step might be taken at the outset, a step which in the long run would be found wise.

Frame hives, something essential to modern bee culture, might be introduced into some of the Government gardens, and would then find favour elsewhere. Notches in the upper edge of the hive would insure the placing of the frames at proper distances one from another, and the main advantages of the moveable-comb system would be gradually learned by practice in the handling the bees. To start this work the Government might manufacture and sell at cost simple moveable-comb hives, perhaps even stocked with bees, and for the present exempt the industry from taxation.

These are the ideas which suggest themselves to the mind of one whose stay in Ceylon must necessarily be very short, but who feels an interest in seeing a favourite pursuit receive the attention its importance demands.—(Signed) FRANK BENTON, of the State Agricultural College, Lansing, Michigan, U.S. America.

Colombo, January 25th, 1881.

P.S.—Mr. Benton's further contribution—entitled "A Journey to the Indies; The Bees of the Island of Ceylon"—will follow. He divides the paper into—the Trip down the Red Sea, Aden, across the Indian Ocean (all with reference to the welfare of the bees in his charge), the Island of Ceylon Bee-hunting, the Large Bees, the Honey Bees of Ceylon; a Description of the New Race—the Workers, the Queen, the Drones, Additional Observations.—A. N.

#### TRADE CATALOGUES RECEIVED.

Samuel Yates, 16 and 18, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds.*

M. E. & E. Horley, Toddington, Beds.—*Illustrated Catalogue of Garden Structures.*



\*\* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

**Books** (James D. Ker).—Our manual on "Florists' Flowers" contains information on the properties and culture of Auriculas; it can be had by post in return for 4½d. in postage stamps sent to the publisher. Mr. Douglas's book on "Hardy Florists' Flowers" would be useful to you, but we do not know whether the edition is all sold or not; you can gain this information with particulars as to price by writing to the author at Loxford Hall, Ilford, Essex. (J. L. O.)—Mr. Iggulden's manual on the "Tomato" contains all the information you require. It can be had post free from this office for 1s. 1d.

**Address** (E. J. Hughes and J. D. K.).—Your letters have been forwarded to the gentleman whom you desired to have them.

**Watering Vallotas** (A. Boyle).—If the pots are very much crowded with roots, and the plants are in a sunny position during hot weather in summer, it is better to place the pots in saucers of water than to permit the foliage to flag. If you place the pots within larger during hot weather you will find the shade so afforded the roots very beneficial, and the soil will not dry nearly so rapidly as if the pots containing the roots were exposed to the sun.

**Vine Bleeding** (F. J.).—You adopted a good mode of arresting the flow of sap—namely, dressing with painters' knotting, and we are glad to learn it proved efficacious. The little sap that may escape now will do no harm, as the Vine will commence growing shortly and the bleeding will cease. You pruned the Vine quite correctly, and had you at the same time rubbed some lead paint on the fresh-made cuts in all probability there would have been no exudation of sap from the Vine now. The bleeding is a sign of good health rather than otherwise, but it occurs most with Vines that have not thoroughly ripened their wood.

**Grafting Espalier Trees** (Idem).—If the scions are inserted between the bark and the wood of the severed branches, which is a safe and simple mode of grafting such trees, and the one most frequently adopted, there will be no need for anything besides ligatures to keep the scions firm in their places. We have seen pins used without injury when softwooded plants have been grafted,

such as placing Epiphyllams on Pereskia stocks, but we have never seen the necessity of similar aids in grafting fruit trees.

**Purchasing Gladioli** (Idem).—As economy is a great consideration you cannot do better than write to a dealer in the corms and ask him to send you a stipulated number of the best varieties he can supply for the price that you name to him. If you select the varieties you will be charged a higher price because the stock of some of them may be low, while of others equally good there may be an abundance of corms. Unbloomed seedlings from a good source are sure to include some varieties of merit for garden decoration, and for this purpose we should not hesitate to plant them.

**Heating with Paraffin Oil** (J. B.).—While paraffin lamps are serviceable for excluding frost from frames and very small structures, they are not by any means equal to hot-water or even a good flue for heating greenhouses. The smoke from the lamps is injurious to flowers, and so also is the dry atmosphere that results from the lamps being overheated, as they not infrequently are during severe weather.

**Alternanthera paronychioides aurea** (G. C. W., Mass., U.S.A.).—This variety originated in Battersea Park. It is of the same habit of growth as the species, but the prevailing colour is reddish gold. It is very distinct, and is effective for carpet bedding. The stock we believe passed into the hands of Messrs. James Veitch and Sons, Chelsea, for distribution. A description of the bedding in the London parks appeared in our last volume, and notes of a similar character will no doubt appear during the present year. The specimens you sent were mere scraps of stems and leaves without flowers, and were further rendered almost unrecognisable by having been crushed in transit. However, from the few characters traceable we think 1 is *Lavandula dentata*, and 2, *Santolina Chamaecyparissus*. When you are writing again send better specimens to enable us to identify them with certainty.

**Growing Gloxinias for Greenhouse** (Amateur).—You may, with the assistance of a hotbed, grow these plants for greenhouse decoration. They should be placed in the hotbed not later than the beginning of April, better during this month, be continued there until the close of May or beginning of June, and then be placed in the lightest and warmest part of the house, keeping the sashes on that part closer than those elsewhere. The plants should be well supplied with water when in active growth and in full foliage. When coming into flower a slight shade from powerful sun is desirable.

**Crocus versicolor** (L. H., Yorkshire).—Your "small early treacle-coloured Crocus" which you had from Holland is probably the one that is sold under the above name. We know it well, and have grown it for some years. It is the most attractive before the flowers expand, as only the outside of the petals are of a dark reddish brown colour, the interior being chiefly yellow, the flowers opening almost flat, as shown in the figure. With us it is one of the earliest of the genus, and, although it is distinct and pretty does not produce such a rich display in borders as the leading garden varieties that are so extensively grown.



Fig. 56.—*Crocus versicolor*.

**Compost for Vine Border** (J. N.).—As you require to know how to make a "first-class Vine border," we will state how the Vine borders at Arkleton were made, and append the results achieved by Mr. Dickson, the gardener there. In the first place the borders rest on several feet of gravel, so that the important condition of perfect drainage is provided by Nature. The inside border is 14½ feet wide and 3½ feet deep; the outside border is of the same width and the same depth in front, and 2½ feet deep at the edge next the walk. The Vines are planted inside, and have free access to the outside border. The components of the soil are fibry loam of medium texture taken from an old sheep pasture, and to every twelve cartloads of turf were added two cartloads of old lime rubbish, one cartload of horse droppings, one cartload of charecoal, and 5 cwt. of inch bones. The turf was fresh from the field, mixed well with the other ingredients, and wheeled into the border without lying exposed. That may be taken as a first-rate recipe for a Vine border, judged at least by the following results, which are certainly "first-class." In the year 1869, at the Edinburgh International Exhibition, the first prize was awarded to Mr. Dickson for a bunch weighing 16½ lbs.; in 1870 the first-prize bunch at the Royal Caledonian Society's Show weighed 19 lbs. 5 ozs.; in 1871 the first-prize bunch at the same Society's Show weighed 18 lbs. 7 ozs.; in 1872 the first-prize bunch at Glasgow weighed 19½ lbs. 6 ozs.; in 1873 at Manchester the prize bunch weighed 16 lbs. 1 oz.; and in the same year another bunch at Glasgow weighed 16 lbs. 10 ozs.; then came the bunch produced in 1875, weighing (by the Judges) 25 lbs. 15 ozs. We do not advise you to make the border its full width now. A width of 4 feet will probably be sufficient the first year, the front being supported with a wall of turf. If the soil is in the right condition as to moisture—that is, moderately moist but not wet—you may press it down slightly as it is placed in position, and it will not afterwards settle to do any harm; in fact it will not settle at all if the work is rightly done, and we should not give the border "a good soaking a few days before planting." Making a border is only one element in Grape culture. If you would like fuller particulars of Mr. Dickson's practice you will find them recorded in Nos. 757 and 312 of the Journal, the issues of September 30th and October 7th, 1875. If you do not possess these numbers they can be had from the publisher, price 3½d. each.

**Protecting Fruit Trees** (Willesden).—The cheapest and best mode of fixing a temporary coping for protection is by iron brackets driven into the wall about 4½ inches, and projecting from the wall the full width of the copings, which should not be less than 11 inches, and better if 13 or 14 inches. If there are stone copings to the wall the brackets are best let into and leaded in them. The simplest plan of fixing the protection to the wall is by means of rings, there being a light iron rod fixed in front of the coping, and the material may, therefore be drawn aside like curtains. We know of no simpler plan; but a better plan is to have a roller fixed immediately under the coping, and the material tacked to that, which with a cord may be folded or rolled up and down like a greenhouse blind.

**Cutting Down Ferns** (F. O. M.).—Provided the old fronds of Maiden-hair and other Ferns are perfectly healthy there is no occasion for cutting them

down. Any of the older fronds that are showing signs of decay may be removed carefully, and so afford room for the young fronds to grow. By this plan you will obtain large plants in a less time than if you cut off all the old fronds annually; but if you prefer small and very fresh plants for any particular decorative purpose you may remove the old fronds as you propose. It is well, however, to remember that the young fronds of Ferns do not last half so long when cut and used in bouquets, &c., as the older and darker-coloured fronds do. Useful works on Ferns are "British Ferns," published at this office, price 3s. 9d., post free, and "Select Ferns and Lycopods," published at the Victoria and Paradise Nurseries, Holloway, London, price 5s. 6d., post free.

**Vines Unhealthy (Lonsdale).**—The Vine appears to have been cut down several times, and the sap vessels near the root are much contracted. The roots have made no growth: possibly they were either much dried during the summer or frozen during the winter. The top growth made is from the stored-up sap in the cane, and, the supply ceasing, withering of the foliage necessarily followed. The Vine made an attempt to live by producing roots from the stem, and if good soil had been placed round these and water given as needed it would eventually have recovered, but it is doubtful if it would have made a vigorous and fruitful Vine. We should not like to plant such a checked and starved example, and it would be far more satisfactory and in the end economical to purchase fresh young healthy canes for planting.

**List of Roses (A Subscriber).**—A moment's thought will satisfy you that the hardness of Roses depends greatly on the position and on the district in which they are grown, and until you name the district for which plants are required your letter cannot be satisfactorily answered.

**Names of Fruit (W. H. D.).**—Barcelona Pearmain. (H. M.).—1, Dume-low's Seedling; 2, Court Pendu Plat; 3, Bergamotte Esperen.

**Names of Plants (A Young Gardener).**—Andromeda floribunda.

**Bees Coming out on Snow (J. S. Cairnie).**—Had you removed the snow from the hive door at dusk and then shaded carefully we hardly think you would have experienced the loss of which you complain. The jar of a footfall near a hive at such times will often start a flight which it is difficult to restrain. The safest course, but perhaps an impossible one, would have been to have placed the hives before the snow had thawed from the mouth in a totally dark cellar until it had been safe for the bees to fly, and to have restored them to their proper stands late in the evening. The cause is clearly the long confinement to which the bees have been subjected, making them intensely anxious to be abroad. While they are in this condition stopping the doorway but increases the evil, as a risk is then run of losing the whole hive by suffocation, and at best very many die of mere exhaustion through continually worrying and hattering themselves against the closure. If you can secure absolute darkness and yet give sufficient ventilation you will extremely reduce if not altogether prevent the loss of which you complain.

**Feeding Bees by Day and Night—Feeding through the Quilt—Giving Foundation—Flour Cake (Goosequill).**—We have submitted your queries to Mr. Cheshire, who replies thus:—Commencing to feed a stock in early spring sets up considerable excitement, and if this be done during daylight the bees, not at the bottle, knowing that their companions have found booty, rush from the hive to scour the country in search of it. They thus exhaust themselves, and in addition often expose themselves to destructive cold and rain, and at the best get nothing. Stocks may thus through injudicious feeding be weakened more than helped. Either put on the hottle at night and feed continuously and very slowly (for in this way the excitement has nearly subsided by the morning), or give only so much each night as will be taken before full daylight. There has been an arrangement exhibited for feeding through the quilt and chaff box also if desired. It consisted of a small tin can with a central hole in the bottom into which a short brass pipe was soldered. This was provided with a closely-fitting cotton wick. This is placed in position filled with syrup, which passes through, according to the theory, only so quickly that the bees can continually keep the wick from dripping. The wick would require to be carefully fitted. I am now feeding through the chaff box by a plan which will in due time be exhibited. By no means give foundation, yet shave the capping from one of your overfilled outside combs and place this in the centre of the brood nest if you feel sure the bees are able to bear it. Depend upon it the race will be to those who "make haste slowly." Flour cake is most serviceable, but if you use it and use it you should be sure to expose water in some convenient vessel amongst your hives, and never by any means allow this vessel to be dry. You may if you please feed syrup at the same time that you give flour cake, but syrup feeding in your case seems unnecessary.

#### COVENT GARDEN MARKET.—MARCH 23.

OUR market continues low, both supply and demand being inactive, and the condition of business remains practically the same as last week.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 4 6	Melons.....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches.....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert.....	dozen	4 0 8 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples...	½ lb.	1 0 2 0
Gooseberries...	½ sieve	0 0 0 0	Strawberries...	per oz.	2 6 0 0
Grapes.....	½ lb.	3 0 12 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto.....	½ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 9 1 3	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsteams.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 0	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	3 0 3 0
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 2 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

##### THE UTILISATION OF WASTE LAND.

WASTE land, as it is termed, is land of an uncultivated and more or less barren surface, and we propose to state certain modes and means by which such land, now comparatively worthless, may be turned to better account. In doing this we shall have not only to consider its present condition, but also its capabilities through the nature of the soil, the climate, and situation. That there are in the kingdom enormous tracts of waste land is admitted by all; and the most difficult point is, not how to improve it, but to make it pay for improvement as an investment or farming transaction. Under the head of utilisation we ought as much as possible to look at the matter as not only a mere change of surface, such as from grass to arable land, or *vice versa*, but also as to its being made profitable on purely commercial principles. It is true that immense tracts of barren and waste land have been reclaimed and made available in various ways, especially for corn produce and provision for stock, and also large portions laid into grass of different degrees of fertility and value.

The home farmer must remember that in undertaking the reclamation of wild, mountainous, and barren soils, although they may vary in the value, several points ought to be considered in reclaiming waste and Heath lands, as well as land long since cultivated, but that from untoward circumstances may have become waste and worthless. 1st, The present value of the land to the owner or occupier; 2nd, The probable cost of reclaiming it; and 3rd, Whether after it is reclaimed the improved value may reasonably be expected to be remunerative. These should be carefully weighed by the home farmer. In taking a review of waste lands converted into tillage or pasture we can find but little encouragement in what has been done, agriculturally speaking, during the past thirty or forty years, simply because the value of agricultural produce, as far as corn is concerned at any rate, has been much reduced. The future prospect, in view of foreign competition, also does not give us much confidence; for although we must admit the great and increasing value of labour-saving machinery, yet the value of manual labour is not only more costly than at any former period, but also less efficient. We must therefore at present set aside any plan of reclaiming land upon previous systems, unless they can be shown to have a reference to special production of particular crops, yielding much larger returns than ordinary agricultural produce in cereals. We thus very much narrow our position, when it is understood we have now only to expect a return for investment in order to obtain specialities in produce, such as market garden produce, woodlands, or useful pastures. The only exception to these to be considered is additions to certain lands, thus improving them, and also beautifying portions of certain estates.

The course pursued in utilising much of the Chat Moss district, through which the Manchester and Liverpool railway was made to pass many years ago, is an illustration of the value which peat bogs may be made to yield. Large tracts were there turned to account by drainage, claying, marling, and liming, the land being utilised as market gardens. In other parts the peat was sold at the rate of £30 or £40 per acre, and the land after being thus cleared of the superfluous bog earth realised by sale a similar price for agricultural purposes. There are plenty of cases where waste



land has been pared and burned on the surface, although previously covered with Heath and Gorse, cultivated for a few years under improved modes of manuring and cropping, and eventually laid into grass. In those cases where the soil and climate were found suitable land was converted into pasture of sufficient letting value to amply provide interest for outlay. This is one of the means open to us at the present time, for in many cases we have heathlands adjoining parkland or other good pasture where it would pay for reclamation in an exceptional way, or for certain objects, not always being easily estimated by money. We cannot here dwell upon this subject to describe practically the work necessary to produce a useful pasture from waste land, because we have done so previously under the heading of "Laying Down Land to Permanent Pasture" in this Journal. Although we have just stated that our past experience of the value of reclaimed land cannot safely guide us in the future as regards the growth of corn, yet we still hold the opinion that turf land is likely to hold its own in value for the purpose of grazing sheep and cattle, more especially upon pastures of moderate value for dairy purposes. To enable us, however, to reap the full advantage of reclaiming land for any purpose we must always reckon upon steam power as our best ally in reducing the land into a state fit either for cultivation or preparation for permanent pasture.

We must now refer to specialities in produce, if we may be allowed to thus designate market garden produce, in either fruit or vegetables, the growth of Hops, &c., as in most cases where the land and climate are suitable very large returns are frequently realised. We will refer to Strawberries as a striking illustration of what may be done upon land hitherto considered comparatively worthless. To show that our own observations are not confined to a particular district we will refer to the cultivation of Strawberries grown for the London and other markets in Kent, Surrey, and Hertfordshire, and their contiguity to the metropolis is of the utmost importance, owing to the perishable nature of this fruit. When in good condition this fruit has a ready sale in the London market; for although it is often glutted with Strawberries from France at the commencement of the season, they, however, generally arrive in bad condition, and are sold chiefly by costers. It is quite common for growers in some of the above-named districts to have 30, 40, or 50 acres under Strawberries, and some of the largest holders of land have as many as 100 acres, and the quantities sent to market every morning is enormous; it is, in fact, on record that one grower alone sends 70 tons of this fruit to market in the course of the season. Good samples, if carefully picked and packed in boxes each containing about four dozen punnets (containing 1 lb. each), will realise from 1s. to 2s. per pound according to the supply; but for fruit of the second size and quality much lower prices have to be taken. The produce is sometimes sold to middlemen, who pick and take the fruit away, running all risks. The price paid is about £20 per acre. Other growers supply the jam makers at the prices of from £20 to £30 per ton; these are of the poorest quality, and are sent to the manufacturers in casks to contain from 70 lbs. to 1 cwt. each. We have evidence that other counties and districts grow Strawberries extensively; the county of Somerset is one instance. Then we have an illustration how far north they can be grown in the fact of waste lands being appropriated for their growth at the foot of the Grampian Hills in Scotland. The latter district supplies the Edinburgh and Glasgow markets to some extent.

Hampshire has within the past seven or eight years become one of the most important Strawberry-growing counties, especially as regards the quality of early fruit. Having during last autumn visited one of the principal Strawberry-growing districts, we were very much interested in seeing a district in South Hants, which we recollect formerly was common or waste land, supporting only a few poor cows and small forest ponies, and being covered in

many parts with Heather, Ling, and Gorse, and the manorial rights of sporting partly exercised over it. Fifty years ago, when we first knew this land, it was not considered worth cultivation, being in most instances a poor clay and gravel, in some cases mixed, any soil which had ever been upon it having for generations been pared off and carried away for fuel by the cottagers. This waste land, consisting of about 1200 acres, was enclosed in the year 1862 and allotted by the Enclosure Commissioners to upwards of two hundred different persons having common rights. One owner lets land to twenty-one cultivators who grow Strawberries almost entirely, and in conversation with some of the growers we were informed that the produce had varied in value from £80 to £100 per acre, the latter sum being made by some of the best cultivators in the best seasons, last year especially having been one of great produce and of fine quality of fruit. From this district some of the finest fruit produced in the kingdom is obtained, and grown upon land never believed to be worth cultivation, and much of it is now comparatively worthless for any other produce, although during the height of the season 25 tons are delivered at a local railway station daily, much of it going to London, Manchester, and towns in the locality, like Southampton and Portsmouth.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—At the beginning of the month this work was greatly in arrears, but lately the weather has proved very favourable for the seed time and the preparation of the land for the root crops. The seeding of Barley although not very early has been suitable, the land being neither too wet nor too dry since the middle of the month. The home farmer will not only require all the animal power of the farm, but the assistance of steam power also; and in order to bring up arrears of field work it is desirable not to trust too much to the weather in our fickle climate. The only way in which we can make sure of a good season for the preparation of the land for Lent corn, and also for the Mangolds and Potatoes, is to take advantage of fine weather, and make use of sufficient cultivating power to bring the land into good tilth at the earliest date. The greatest mistake made in adjusting the working power is to argue that in case the weather should be fine the horses alone will do the needful work all in good time. We, however, ask the home farmer not to expect that the weather will continue uninterruptedly fine, and arrange the working power accordingly. We have often known a fine seed time during March, but in April the rains have frequently prevented labour of consequence being done during the greater portion of the month. When such is the case nothing can compensate for the loss of labour during April, therefore these matters should be anticipated and provided for. This is now the best time for drilling the Mangold seed, and we recommend the stretches to be made about 2 feet apart, the dung being buried in the stretch, so that the land may be horse-hoed at the earliest period, and before those crops cultivated on the flat will bear the horse hoe. The home farmer must remember the best and sometimes the only way to destroy weeds is in their infancy, for in adverse weather if not destroyed whilst in the first leaves they are sure to grow again and cause extra expense. There are soils, however, such as sharp gravel which are best cultivated on the flat, the dung being ploughed under early, and then drill the seed at 2 feet intervals with artificial manures, as full crops cannot be grown without heavy dressings of manure. Besides, if we apply more manure than the Mangold crop requires the land is in a better state for a successional crop, and ready for seeding immediately the roots are cleared off. We seldom obtained a full crop of Wheat after the Mangolds, but have succeeded well with Barley when the Mangold leaves had been ploughed under, and Barley drilled without spring ploughing; in this way the best Barley may be grown. We do not advise the sowing of Carrots until the first or second week in May, but the seed may be prepared; our plan is to rub the burr or husk off with the harvest gloves by hand, the seed will then drill as freely as Mangold or Swede seed. We disapprove altogether the practice of mixing the Carrot seed with ashes or manure, by drilling the seed and manure together at the same time. We have always found the most regular plant can be obtained only by drilling the seed alone after being properly prepared.

*Hand Labour.*—Men are now employed in connection with the seed time. After the seeding of Beans and Peas there will be water-furrowing to be done, because upon many soils where Beans and Peas are usually cultivated the land is frequently flat and retentive of water. The women can be employed in Potato-cutting in readiness for planting; they will then be required in planting, for they can do quite as much as men at such light work, for it only requires activity. Guano and artificial manures as well as ashes should be prepared for use both for application to Potatoes as well as to Mangolds at seed time.

*The Live Stock.*—Damp close weather, which was for a long time unfavourable, has been lately followed by pleasant weather, and the stock of all kinds have improved in consequence where plenty of food has been provided for them. We at present know of cases where little or no food the produce of the farm is remaining, owing



to the damage by severe weather to the roots, and it will certainly cost as much or nearly so as the sheep will be worth to purchase all their food. To sell the sheep would prove nearly as bad, for where stock are forced on the market through a short provision of food in the country prices are sure to find a low level. A portion of the early lambing horned ewes, in consequence of their lambs having been sold, only require a few weeks to feed them into good mutton, and to do this bean meal mixed with cut Mangold will complete the fattening of these ewes better than any other kind of trough food at this time of year. The Dorset Downs and early Wiltshire and Hampshire Down ewes and their lambs must now be fed at great expense to get their lambs fat for the London Easter market, after which the ewes may have Mangold and meal until the grass in the water meadows and Rye on the arable land are fit for feeding. The Swedish Turnips in most instances where not pitted during the frost have but little feeding value where not actually decayed, and in fattening flocks it will require a large outlay to meet the deficiency of the root crops. In the case of breeding flocks, even where only kept in store condition, a more than usually liberal expenditure in purchased food will be necessary, especially on those farms without irrigated meadows. Italian Rye grass is, however, a capital and almost the only substitute which can be relied on for early green food in the absence of water meadows. The fattening bullocks in their boxes will require also in many cases to be put on shorter allowance of root food. This, however, may teach the home farmer a lesson, for but few know how to dispense with large quantities of roots in fattening bullocks with Mangolds and meal cut and mixed; 40 lbs. per day is quite enough to fatten the animal quickly if 2 lbs. of bean meal is added with good sweet oat straw *ad libitum*. The young cattle and dairy cows will still be in the yards and feeding on Carrots, except upon farms where there are water meadows available. With regard to young heifers intended for the dairy in the future, these may be kept in pairs in divided pens with so much space under cover, and so much outside; and when kept in winter and summer until they bring their first calf, they grow up into notice as fine dairy cows, and much larger than those which run the pastures and have to rough it during the winter months. When kept in entirely the manure accumulates under them on the principle of box-feeding, and they return valuable manure for the food consumed.

#### ITALIAN CHEESE.

M. CHARLES PAVIA has published a pamphlet on Italian dairy produce, in which a full description is given of the curious modes of manufacture of Parmesan and Gorgonzola cheeses, a brief notice of which may interest our readers.

M. Pavia speaks of Parmesan as the king of cheeses, "as it contains more flavour and aroma," but we find from the description that it is really a skim-milk cheese, which does not arrive at perfection until it has been kept at least three years. Parmesan cheese is made entirely from cow's milk, and the bulk of it is made from April to October, whilst the cows are fed on green forage. It is stated that the daily production of northern and central Italy weighs about 15 tons, about one-fourth of which is exported. The milk is skimmed once or twice after it has stood from six to twelve hours, the cream being made into butter. The skimmed milk is then placed in a cylindrical boiler and heated by wood fires or by steam to 95° or 100°; a curdling liquid is then introduced, but there does not seem to be any regularity in the system or its results. After stirring or breaking, heat is again slowly applied up to 150° Fahr., colouring being also added. The cheese is then considered completely cooked. The curd is taken out, enveloped in linen, and put in a vat, being turned over once a day, but without any pressure, the surface being salted repeatedly for six weeks. The salt is then scraped off the rind and fine linseed oil applied, which gives the black swarthy coat peculiar to Parmesan cheese. The cheese is then stored in cool dry warehouses, being kept for years, any which show a tendency to decay being quickly got rid of. M. Pavia protests against the cheese-borers being used in testing this cheese, as a "cheese bored may be considered as spoiled." The crust is, at any rate, so hard as to turn the edge and spoil an ordinary cheese borer. This cheese has, no doubt, its admirers in this country amongst those who prefer something out of the common line, but we do not think a cheese so deficient in richness will ever take with the general public. Gorgonzola is of much richer character, being made of unskimmed milk and not cooked. The best of it is always made in the autumn. The fresh milk being coagulated at a moderate temperature, the curd is gently stirred and placed to drain, or hung up in pieces of linen. The curd from the evening's milk is added whilst still warm to that put in the vat in the morning. At the joining of the two lots of curd a green or blue mould is formed, much esteemed by some, and which adds greatly to its value. The cheese is turned when it gets dry enough, but never subjected to any pressure, a little salt being rubbed on the coat of the cheese. It is kept at a low temperature through the winter, and ripens in the warm weather of the following summer.

It is mentioned as a peculiarity of the manufacture of all Italian cheeses that they drain and become dry without any of the pressure which is considered necessary in the making of all other foreign cheeses, and which it is suggested may be a matter of "pure prejudice on the part of other nations." We lately heard a friend express the antipathy he felt to the use of macaroni, due to a sight of its manufacture in the filthy surroundings of the towns of Southern Italy; and though we think the natives of the district in the north, where dairy produce is made, compare favourably in the matter of cleanliness with their southern brethren, we much doubt if a personal inspection of the making of butter and cheese in Italy would increase the favour in which they are held. —(*Journal of Applied Science*.)

#### VARIETIES.

AGRICULTURAL PROSPECTS.—An entire week of exceptionally fine weather has proved of inestimable benefit to agriculture, and the greatest possible progress has been made with spring sowings on the lighter soils. The young Wheats, though backward for the season of the year, begin to assume a decidedly healthy appearance, and are creeping along the ground in a manner which is always considered to be indicative of a good start in the life of the Wheat plant. On light lands sowing is now in full swing, but the clays turn up cold, although dry on the surface. The Wheats, in the great majority of instances, have the appearance of being likely to pull through; nitrate of soda is not very dear this season, and its judicious use later on would probably turn out a profitable speculation. If this weather would but last throughout the month agricultural prospects would be considerably brightened thereby. Foot-and-mouth disease is declining, but liver-rot is working sad havoc amongst flocks in the Midland and West Midland districts. In Cheshire it is very prevalent amongst young cattle, and the dread of it nearly everywhere will be likely to lessen the demand for stores very considerably. —(*Mark Lane Express*.)

— LITTER FOR RABBITS.—A "RABBIT-KEEPER" writes:—"I shall feel obliged if some of your readers will kindly inform me the best kind of litter to use for Rabbits. Hitherto I have used common hay, but my stock is now exhausted, and I find best hay rather too expensive. The next most convenient thing for me to obtain is barley straw, but some of my friends tell me it tends to produce vermin on the Rabbits. I shall be glad to know if this is so, or whether I may use it with safety."

— COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION.—A correspondent informs us that the British Bee-keepers' Association has exerted great interest in bee-keeping in Ireland, and that the first meeting of the above Association was held on the 11th inst. under encouraging patronage. Mr. George Greer moved that an Association be formed, to be called the County Armagh Bee-keepers' Association, for the purpose of encouraging the intelligent, humane, and proper keeping of bees. Some years ago an Association was formed in England, called the British Bee-keepers' Association. There were only eight members at first, and now it numbered several hundreds. This Association worked by means of local organisations throughout the country, and the central Association was the means of collecting knowledge from other countries, such as Italy, Switzerland, and France, and also aided by giving money prizes and keeping up a "bee tent." This year an Irish Bee-keepers' Association had been formed, and there was no reason why it should not work as well in Ireland as in England. There was a very large profit to be made by honey, as a large sum of money went out of the country for honey and wax; and, again, the bees were not destroyed. The Association would show the members how to make up the honey in an attractive and saleable form, and would also try to get a market for the honey produced. An ordinary labouring man, who did his day's work, could easily find time to look after ten hives. Rev. Mr. Lett seconded the motion, which was passed unanimously. The following were appointed office-bearers:—Patroness—the Baroness Von Steiglitz. President—Sir Wm. Verner, Bart. Vice-Presidents—Mr. M. C. Close, M.P.; Mr. J. N. Richardson, M.P.; Major Stewart Blacker, and Mr. John Hancock. Committee—Dr. Lynn, Messrs. Wm. Allen, James Ussher, Thomas Best, and George Hazlett. Treasurer—Mr. T. G. Peel. Secretaries—Mr. G. Greer and Rev. H. W. Lett.

## POULTRY AND PIGEONS

### LA FLÈCHE.

At the recent Paris Exhibition we were much struck with the size and quality of the specimens of the La Flèche breed exhibited in the dead poultry classes. Our appreciation of their merits was not diminished by subsequently partaking of one of Madame Aillerot's prize birds at an English table. This bird had been killed over three weeks when we tasted it, and it was one of the finest fowls under the carving knife we have ever seen. The white meat was abundant and delicious, while the legs were fully equal in quality to those of a Turkey. We are aware that most attempts which have hitherto been made to rear these birds in any large quantity in this country have not been very successful. The Houdan and the Crève have established themselves firmly on our soil, and have become acclimatised, while the third leading French breed still has but a precarious footing here. We think that if its merits as a table fowl were more generally known a more persistent attempt would be made to overcome the first difficulties of importing it to a fresh home. It is true we have the Dorking as our champion table variety, but we are bound to confess that we have never seen any Dorking dressed for table which could compare with the best specimens of La Flèche at Paris.

We cull the following information as to the table qualities of the La Flèche and the mode of fattening it from the pages of *Le Poulailier*. When fully grown the cocks weigh from  $7\frac{1}{2}$  lbs. to 9 lbs., the hens from  $6\frac{1}{2}$  lbs. to  $7\frac{1}{2}$  lbs. These weights are those of the fowls of full age as they run in the yard. M. Letrône, to whom M. Jacque confesses his indebtedness for much of his information about the breed, considers that its origin is unknown. Its celebrity may, however, according to old historians, be dated from the fifteenth century. M. Letrône considers that it had a more ancient origin. These choice table fowls were originally produced at Mans, later at Mézeray, and finally at La Flèche. The industry has long since been abandoned at the first-named place, it is declining at the second, and it is only at La Flèche and the neighbouring municipalities that it is still fully maintained. The La Flèche fowl, so well adapted for fattening, are also, says M. Letrône, very robust and but rarely sick. They readily become acclimatised in any country to which they may be transported, and their good qualities are easily preserved, providing that in-breeding to excess be avoided. They can habituate themselves to any food when they have attained a certain age, but they should at first be supplied with food which is at least similar to that which they are accustomed to in their own country. When allowed their liberty they do not ramble much, provided that they are supplied with green food. The fineness, the delicacy, and the exceptional flavour of their flesh are easily perceivable even when they have not been crammed; but these qualities are brought out in perfection by the fattening process, to which both the pullets and cockerels are submitted at the age of seven or eight months. The cockerels are left at liberty as long as is thought necessary, but they are kept apart from the pullets. If this be attended to they are much better disposed to fatten, and the necessity for caponising them is avoided. The pullets are submitted to the fattening process before they have laid. These birds do not come to maturity until they are nine or ten months old, but from this seeming disadvantage arises the advantage that they continue to grow through the winter, and make grand specimens in the spring time, when good fowls are very scarce. The usual poultry food in the La Flèche district is whole white wheat, which is given three times a day. This food is used because the birds are very voracious, and have at certain periods a tendency to run to fat.

The chickens are after the first few days fed upon a paste composed of bran and meal. This is continued for six months with this variation—that as the birds grow the quantity of bran used is increased and the quantity of meal diminished. Green food is always supplied in abundance. The process of fattening adopted is by no means a secret in the localities where the business is carried on. Malicorne, Arthézé, Courcelles, and Vilaines hold the first rank for fine products and the number of persons engaged in the industry. It is to the district of La Flèche that these and other towns which are engaged in the trade belong, and it is to the town of La Flèche that all the feeders bring their fat birds on market days; it is there that they may be seen for sale by hundreds at a time.

The special work of fattening appertains chiefly to the farmers

and certain small husbandmen whom they call poultry-keepers (*poulaillers*). Both these purchase in the markets or from their neighbours those pullets (which they call *gelines*) which appear most suitable for fattening. To produce those fine specimens not less esteemed than the pullets which are called *coqs vierges*, young cockerels of the year are submitted to the same process of fattening as the pullets, with this difference—that they take longer to fatten.

The finest pullets attain the weight of nearly 9 lbs.; the finest cockerels about 13 lbs., and they have been known to surpass these weights.

The poultry-keeper fattens at the same time from fifty to one hundred birds. The season generally commences in October, and lasts about five months. All round the sides and on the floor of a room or other place suitable for the purpose small coops are made. These are constructed of cheap rough wooden laths, and cost no more than the time it takes to make them. The height of the coops should be from 20 to 24 inches, the length in proportion to the number of birds the coop is to contain. Six birds are as many as should be put in one coop, and there should be just space enough for them to lie down without being able to move about. All direct light is shut out, and the chinks of the doors and windows are carefully stopped, so that the fresh air is almost excluded. To accustom the birds to the system of feeding and the forced seclusion to which they are about to be submitted, they are placed for the first eight days in a rather dark place, and are fed upon a paste composed of the same meal with which they are subsequently crammed, mixed, however, with a half or a third the quantity of bran. During this period they are given water to drink, and allowed to eat as much as they please.

The meal of which the cramming balls is made is ordinarily thus composed; one-half buckwheat, one-third barley, and one-sixth oats. The coarse bran is separated from the meal. Every day enough of this meal is mixed with sweet or sour milk to feed the birds that night and the next morning. Some add to the mixture a little hog's lard, especially towards the end of the fattening period. This paste, which should neither be too hard nor too soft, is rolled into pellets (*pâtons*) of the form of an olive, about  $2\frac{1}{2}$  inches in length, and rather over half an inch in diameter. The crammer at the feeding times, which ought to be regularly observed, takes three birds at once, ties them together by the legs, and places them on his knees, then by the light of a lamp he commences by giving them each a spoonful of water or skim milk. Some, however, do not give the birds this drink. He next puts a pellet into the mouth of each bird in succession, and to facilitate the swallowing process he gently presses his finger and thumb along the neck of the bird down to its crop. The advantages of taking three birds at once are, that it gives time to each to swallow the food, and that the filling of the bird's crop is more gradual. During the first days of the cramming process the crops of the birds are only moderately filled, but the number of pellets given is gradually increased; in this manner the number of pellets given at each meal ultimately reaches from twelve to fifteen. It is essential that the pellets should each be dipped in water before being given, as this makes them more easy to swallow.

The time necessary for fattening varies. Some fowls take but six weeks, others two months. Sometimes, if the bird is well disposed to take his food, he is fattened for as long a time as possible, and it is thus that phenomenal weights are attained.

Some birds cannot be completely fattened, and the poultry-keeper must exercise his discretion as to these, and kill them at their best. Losses cannot be avoided, and these sometimes take place in spite of every care and attention.

No straw or other bed is given for the birds to lie upon, and their coops are not cleaned out during the entire period of fattening. M. Letrône very justly remarks, that if the exhalations arising from this neglect of cleanliness are necessary to aid the fattening process they cannot but be injurious to the poultry-keeper who has to spend much of his time in the noxious atmosphere. We do not doubt that many of the losses which are said to arise owe their origin to this neglect of cleanliness, and we should strongly urge any of our readers who may feel inclined to give the La Flèche mode of fattening a trial to omit that item in the programme.

### THE MODERN DORKING.

It is a long time since I read anything in your poultry columns more interesting than Mr. Cresswell's remarks at page 224. Most of us amateurs are more ready to accept the above gentleman's dictum on Dorkings than any other authority, as it is well known he is thoroughly practical, and as a rule follows a middle course, which is very agreeable. I have lately come into possession of

some Dark Dorkings from one of the oldest breeders of them. They are the real original Dorking, and have the points so accurately delineated by Mr. Cresswell. They are really splendid fowls, and it would indeed be a pity were another form substituted. What I want to suggest is this, Let all interested in Dorkings read carefully Mr. Cresswell's remarks, adopt his opinions as a standard to breed to, and there will not be the slightest danger of the Dorking losing its best qualities.—J. MUIR, *Margam*.

#### CROSS-BRED POULTRY.

It has often seemed to us a pity that some of the many poultry fanciers who wish to make their yards useful as well as ornamental do not take a little more trouble in trying the results of various first crosses of pure breeds. We should indeed be the last to depreciate really pure-bred poultry; the particular requirements of each breeder can be satisfied by them, and their special excellencies are known beforehand; the advantages to be derived from keeping them distinct are manifold, and we have often dilated upon them. There are, however, cases in which first crosses are advisable. We say first, for beyond these the special benefits derived from a cross generally seem lost. Cross-bred birds are proverbially hardy, and can be reared in adverse circumstances. The subject of this article has been suggested to us by the frequent appearance in show schedules of classes with liberal prizes for cross-bred fowls, which one would expect to find well filled with useful plump-looking birds. Such is not, however, the case; indeed we hardly remember having seen a class with more than one or two pens really adapted to the table. The best class of the kind we ever saw was two years ago at Scarborough; but even then great size, such as it is well known that the Brahma-Dorking cross produces, seemed to have been more thought of than the production of small-boned plump fowls. At Guildford, one of the centres of the poultry-breeding districts of Surrey, liberal prizes were offered by a gentleman for cross-bred fowls, but the winners of them had the appearance of being picked up from a miscellaneous lot. Now the schedule of the Birmingham Dairy Show is before us. In it are classes with four prizes in each both for trios of cross-bred fowls of 1880 and 1881, open to general competition; there are also similar prizes confined to Warwickshire tenant farmers and cottagers. The season is almost too far advanced for the offer of these prizes to stimulate breeding this year, but we hope that it may do so against the dairy show of another year. The Brahma-Dorking cross is often quoted as the best; birds, however, produced by it must be eaten early or they become coarse; they are generally too large in bone. Houdans or Crèves crossed with Brahmas produce very hardy and useful fowls, the hens generally wonderful layers. Dorking and Game has always been a favourite cross with us; we suspect, however, that Polish and Dorking would produce a most useful fowl and excellent for the table. We have of late quite disproved in practice the theory that Polish are delicate fowls; Dorkings, too, in fairly favourable circumstances are as robust as most breeds. We are much inclined to think that the union of the two would be a great success; at any rate this and many other crosses are quite worth while trying, and we shall be glad to know the results of any experiments. Of course there are in all such experiments two distinct objects which may be aimed at—firstly, the production of a good table fowl, and secondly of a race of good layers. For the former the most hardy, healthy, and shapely specimens should be selected; for the second it is also of great advantage that hens known individually as the best and earliest layers should be chosen. We are persuaded that in this respect pullets as a rule follow their mothers, and that consequently much might be done by careful selection. Year after year in our own yards the same hens lay first, and often birds of three or four years old quite anticipate all the pullets. Such are very valuable, and might be made the beginning of improved strains.—C.

#### POULTRY NOTES.

It is instructive to observe the effect which different seasons have upon the health of poultry. A good indication of it is the proportion of eggs, and still more the proportion of fertile eggs we get. We have always observed that in winters and springs when there are many alternations of frost and thaw there are few fertile eggs. This winter, in spite of the intense frost, in which our birds suffered terribly from frost-bitten combs, we have had a very large proportion of fertile eggs, indeed we have hardly had a clear one. We attribute it to the fact that the spells of weather have been longer and less variable than usual at this time of year,

and that almost ever since the frost the ground has been moist, and so given plenty of insect food.

We hear of some good hatches in incubators; doubtless the absence of drying winds has favoured artificial hatching.

We observe in the schedule of the Birmingham Summer Poultry Show that the rules of the Poultry Club are in a general way adopted, among them "Any exhibitor who has been disqualified for fraudulent practices is ineligible to compete at this Show;" also, "No person is allowed to exhibit borrowed birds." The general adoption of such regulations will check much cheating. We suppose that the schedule in question has been drawn up with the object of encouraging the breeds of poultry suitable to farms. If so we regret that some of the sorts remarkable as layers, such as Minorcas and Leghorns, have no classes. We believe that there is in England quite as wide a field open for the producers of eggs on a large scale as for the breeds of poultry.—C.

#### OUR LETTER BOX.

**Materials for Eggshells (W., Essex).**—The best supply for laying hens is a heap of bricklayers' limy rubbish. Oyster-shells burned in the fire until they can be easily pounded are also efficient in supplying calcareous matter for the formation of the eggshells.

**Field Culture of Potatoes (N. E.).**—In reply to your questions we must first take into consideration your statement that you have grown Potatoes with advantage in different fields for your own use, but not for sale; also, that your arable land is a strong loam fairly drained, and that you have a good supply of farmyard manure. All these points are favourable, and induce us to think that the growth of Potatoes for sale would answer a good purpose, especially as your land is within two and a half miles of a railway station. We should think that with ordinary care and cultivation you may calculate upon about 8 tons per acre as an average crop in your loam. You do not, however, say whether your land is undulating or lies flat; this is very important in determining to some extent the distance of planting between the lines. In planting such sorts of Potatoes as Magnum Bonum and Champion we think that if the land is undulating they may be set at the distance of 30 inches between the lines and 15 inches in the rows, and that having been liberally dressed either with yard dung or guano, and horse and hand-hoed, and earthed up in the usual way, the crop may probably escape the disease in a great measure even in a wet season. If, however, the land lies flat with a strong subsoil the Potatoes should be set at 36 inches apart between the lines, and 15 inches in the rows. When they are set at this width the cultivation may be different, and done by the one-horse plough entirely instead of using the scarifier; and as soon as the Potatoes are up so as to plainly see the lines, the plough should be used between them, turning away two furrows, one on either side of the lines—that is, four small furrows, leaving only about 15 inches unmovd where the Potatoes are growing; this space only will require hand-hoeing as soon as the plants will bear it. Then as soon as the weeds are dead turn two furrows up to the plants on either side; this will destroy all the weeds and leave the land in a loose and healthy state for the Potatoes to root in. But as soon as the runners begin to extend, instead of earthing or hilling the plants in the usual way with a single furrow on each side, let two furrows be again turned towards the plants. After this is done carefully there will be a deep furrow between the hills of Potatoes, and it should be deep enough to break up some soil below where the plough has previously worked, then complete the work by the use of the double mould board plough in the furrow. This will give a free run for any excess of rainfall, and the broken subsoil will readily absorb a large quantity of water, leaving the hills high and dry, which is the best safeguard against the disease. We have, moreover, in this plan a space between the hills wide enough to admit the sun and air so essential to healthy vegetation, and by the plan we have stated nearly all the tubers will be of a marketable size in consequence of the space the roots have to feed in. We reckon 5 cwt. of Peruvian guano per acre to be equal to 15 tons of the best yard or town dung.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1881. March.	Baromet- er at 32° and Sea Level	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 13	29.978	41.6	40.6	S.E.	44.6	48.7	39.2	71.2	39.2	—	
Mon. 14	29.862	40.4	38.0	E.	43.4	47.6	38.6	82.6	37.4	—	
Tues. 15	30.194	43.3	40.6	N.E.	42.6	54.7	34.6	92.3	31.3	—	
Wed. 16	29.385	42.9	40.4	N.E.	42.3	56.6	32.4	82.6	27.6	—	
Thurs. 17	30.523	45.3	42.4	N.W.	41.8	59.3	34.7	97.8	28.7	—	
Friday 18	30.492	45.3	43.6	S.W.	42.6	60.3	38.2	103.6	33.0	—	
Satur. 19	30.233	47.1	43.7	S.W.	43.5	57.3	41.4	102.4	37.4	—	
Means.	30.238	43.7	41.3		43.9	54.9	37.0	99.4	33.5	—	

#### REMARKS.

13th.—Fine but overcast; sunshine only for short time at noon; lunar halo.  
14th.—Fine, with bright sunshine.  
15th.—Very fine bright day.  
16th.—Fine, with some haze; fog in town.  
17th.—Fog in early morning; very fine spring-like day.  
18th.—Fine bright hot sun; high wind, and much dust blowing.  
19th.—Very fine, bright, and clear.

Temperature still above the average, but the nights colder than in the previous week; grass frost on three mornings; no rain, and much dust.—G. J. SYMONS.





31st	TH	Royal Society at 4.30 P.M. Sale of the first portion of Mr. Day's
1st	F	[Orchids at Stevens's Rooms Covent Garden.
2nd	S	
3rd	SUN	5TH SUNDAY IN LENT.
4th	M	
5th	TU	
6th	W	Society of Arts at 8 P.M.

### THE HYACINTH.

ITS PROPAGATION AND CULTURE IN HOLLAND.

**A**MONGST the numerous spring-flowering bulbs there is none that equals the Hyacinth in graceful appearance, brilliant colouring, and delicious fragrance. It is of the easiest culture, and so accommodating that it readily adapts itself to a great variety of conditions, for the bulbs may be successfully grown in water, damp moss, sand, cocoa-nut fibre refuse, soil, or almost any other moisture-retaining medium.

There are several species of Hyacinths, but the subject of my remarks is the Oriental Hyacinth (*Hyacinthus orientalis*), which belongs to the natural order Liliaceæ, and was introduced into this country from the Levant in the latter part of the sixteenth century, and is a native of Asia Minor, Syria, and Persia. It was not, however, until the beginning of the eighteenth century that it attained a foremost place as a florists' flower. An idea of the position it obtained when it came to the front may be realised when I state that a sum equal to £200 has been obtained for a single bulb; now very fair bulbs of good sorts can be purchased for 6d. each. During the time of Queen Elizabeth starch was obtained from the bulbs to stiffen the large ruffs which the nobles and Court beauties of that period employed. The Hyacinth presents us with the very rare phenomenon of a black flower; and it is worthy of remark that the principal colours, if we omit white, are the three primary ones—viz., red, blue, and yellow, embracing every shade of light and dark in these colours. It would therefore lead us to suppose, arguing from this fact, that if the laws of fertilisation were properly understood, that by artificial crossing we ought to be able to produce them of every shade of colour. Such experiments must, however, be left with the Dutch cultivators, the process of raising new sorts being very tedious and the climate and soil of England unsuitable for such experiments. The perfumes of the Hyacinth are almost as varied as the colours, some being particularly delicate and delicious, whilst others are coarser, but all are pleasant and refreshing when diffused in the atmosphere. I heard it said of an enthusiastic cultivator, that he could tell the names of his collection by smelling the flowers. Whether this is possible or not I am not prepared to say, but the perfume varies so much that I believe it would not be difficult to distinguish many of them by that means.

The Dutch growers who supply the English market produce an enormous number each year, of which some idea may be gathered from the fact, that according to a survey made some years ago about six hundred acres (five hundred acres being near Haarlem), were then devoted to the rearing of Hyacinths,

Tulips, and similar bulbs, affording constant employment for a large staff of experts. The cultivation is an important addition to the income of Holland. The official returns for the exports in one year alone (1876) state the value of such exports to be equal to nearly £140,000; at the present time the income is doubtless much greater, as it has been increasing annually. The Dutch cultivators employ various methods of increasing their stocks and obtaining a supply for the different markets. Some scoop out the apex of the bulbs, others cut through the base crosswise with a sharp knife, the operation in each case being performed a short time before planting the bulbs, the object being to cause them to produce offsets.

It may be interesting to recount the method employed by a celebrated firm on their extensive grounds near Haarlem, as it was recently fully explained to me by a friend from Holland, who has been conversant with the process for many years. Previous to planting the bulbs they cut through one or two of the outward layers in a longitudinal direction, and when completed the sections represent the quarters of an Orange when the peel is removed: they are then ready for planting. The ground is prepared some time previously by being liberally supplied with a top-dressing of well-decayed manure composed of about two parts of cow and one part of horse manure, which is laid upon the surface of the soil several inches thick, and afterwards well forked into the ground to the depth of 8 or 10 inches, in which the bulbs are planted about 2 inches deep. The planting is commenced in January, and when finished the Hyacinths require little further care until the growth appears above ground in March or the beginning of April, when the trouble of the cultivator begins in consequence of the frosts that frequently occur at that period. At this time it is not uncommon to see large tracts of ground covered with mats to protect the young growths from injury. When the season arrives for gathering in the crop the bulbs are carefully lifted, cleansed, and packed away until the time for planting arrives.

The young bulbs are planted from year to year until they become sufficiently matured for blooming, which if properly managed generally takes about five years, although it frequently happens that more time is occupied in growing them to this state, and occasionally it is accomplished in a less time. The bulbs are then ready for testing, and are again planted in the same manner and permitted to grow until the flower-spike has advanced and is about to show its colour, when very great care and attention is given to each batch of bulbs in order to ascertain that all are true to name and colour. As soon as the blooms open sufficiently to permit this they are carefully cut off to allow the whole strength of the plant to be economised in perfecting the bulb. The beds are laid out in long narrow lines. In each bed or number of beds are kept separate kinds, which are constantly watched, and if one plant appears of a different colour or variety it is marked so that it may be properly classified. Every bed is carefully checked by the above method. All this care and attention is absolutely necessary in order to keep the varieties quite distinct, otherwise we should never be able to depend upon any kind we purchase being true to name. The cases when we obtain a wrongly named bulb being so very rare, is a proof of the care exercised by the cultivators in this respect.

By the month of June the bulbs are ready for gathering, when they are carefully taken up, cleaned, and laid out upon

racks and turned several times daily until they are dry, when they are packed in paper or Buckwheat chaff, and are ready for repacking for export to England and other countries to which they are annually consigned. A few words may be said upon the districts in Holland most suitable for producing fine bulbs. I am informed that the best bulbs are only grown in the neighbourhood of Haarlem, say of a few miles around that centre, which may, therefore, be said to be the chief grounds in the district. The soil at this part is very deep and sandy, and admirably adapted for producing fine Hyacinths and other bulbs. Other parts of Holland have been tried at different times, but only with indifferent success. This fact may be interesting to those who, like myself, had previously imagined that in almost all parts of Holland the Hyacinth could be grown to perfection, and be valuable in guiding those who may be interested in obtaining the best bulbs only, particularly when required for exhibition.

I will now give a few hints upon the choice and purchase of the bulbs, which generally arrive in this country and are ready for sale in September. The characteristics of a good bulb are solidity, soundness, and symmetry, showing that it has been previously grown with care and well ripened. A smooth and neat appearance and large size are no indications of its value. Some are both large and smooth, whilst others are very rough and small in comparison, and both may be equally good. Those that are heavy in proportion to their size and do not yield to a slight pressure are the most reliable, and seldom fail to produce good spikes. If a bulb is light and feels soft or spongy when slightly pressed with the fingers, it should be discarded, as it cannot be depended upon. The best time to purchase them is as soon as they arrive; you have then a better chance of obtaining good bulbs than by waiting until a number of selections have been made. They will keep if placed singly in any cool dry place where they can receive plenty of air until such times as you wish to start them. I would advise everyone to take notice of the bulbs before planting them, which will soon enable them to form a tolerably correct estimate of the bloom they will produce.—JOHN HAIGH.—(*Read at a Meeting of the Sheffield Horticultural Society.*)

#### GLASS STRUCTURES FOR AMATEURS—VINES.

(Continued from page 186.)

*Border.*—Where the natural soil is not of an unsuitable nature for the growth of Vines there is no need for excavating and forming an artificial border. A loamy rather light soil will only require thoroughly draining with 3-inch drain tiles, at a depth of not less than 3 feet nor more than 4 feet. Soils that overlies gravel may not require draining, but the efficient drainage of the soil is absolutely essential to success. If the soil be shallow over the gravel it must be deepened by the addition of fresh compost, so as to make it 30 inches deep. The whole of the border should be trenched to a depth of 2 feet 6 inches, presuming there is that depth of good soil; if less make it of the required depth by raising it with the fresh material. In trenching a sprinkling of half-inch bones may be placed between the layers, and if the soil is not of a calcareous nature a tenth of old mortar rubbish may be added between the layers, and mixed by pointing each layer over with a fork before placing on another layer of soil. Avoid manure unless the soil be very sandy, when it and turfy loam of rather stiff texture may be added to the extent of one-sixth each. Many soils are so favourable for Vine culture that great expense is often incurred in forming borders by no means so good as the soil excavated. Indeed there are very few soils in which Vines may not be grown with a satisfactory result; what is needed is a free open soil and thorough drainage. In wet low-lying sites, instead of excavating and forming a pit (it may be in clay), the border should be kept at least one-half above the surrounding level, going no deeper than to secure a solid base for the walls and bottom of the border. Nine inches or a foot depth of rubble should be placed at the bottom for drainage after the drains have been properly laid, the drainage being secured by a layer of turves grass side downwards. The top 3 or 4 inches of a pasture where the soil is medium-textured loam, light rather than heavy, is the best staple possible. This should be chopped up roughly, adding a tenth part of old mortar rubbish, and about one part in twenty-five or thirty of crushed bones; those thoroughly incorporated form an excellent border. If the loam be close-textured an addition may be made of charcoal in a similar proportion to

the bones. Those near towns may obtain oyster shells, and these calcined are a capital addition to Vine borders. The material should be mixed and made up with the border in dry weather, and be one-third higher than the intended level to allow for settling. Only a part of the border need be made in the first instance, a width of 6 feet being sufficient to serve the Vines for two seasons; and in the case of the half-span and span-roof house the Vines should be confined to the inside border for two or three seasons, to secure the thorough establishment of the roots there before admitting them to the outside, which should not be made until required.

*Vines.*—All the structures illustrated in the last volume were to accommodate six Vines 4 feet distance apart, commencing 2 feet from the ends. With but one house the ambition is to obtain a supply of ripe Grapes over as long a period as possible. My selection shall be one Mill Hill Hamburg, which is often confounded with Black Champion, the latter having oval berries, the former round and sometimes oblate, and hammered. It is freer and earlier than Black Hamburg, and, as stated in the "Fruit Manual," is "a noble Grape of first-rate quality, having the appearance of the Dutch Hamburg with the quality of the Black Hamburg." It is a Vine that tells more than any other the falsity of judging by appearances, its foliage being pale green and sickly-looking, yet its constitution is good; it bears abundantly, and the Grapes invariably finish well. A fitting companion for that is White Frontignan, which is sure to find favour with the home consumer for its excellent, abundant, and certain bearing, and very rich juicy crackling flesh, with fine Muscat flavour. Black Hamburg is indispensable and needs no eulogy, being the most deservedly popular of Grapes. A fitting companion for it is Foster's White Seedling, which is a showy Grape of first-rate quality, and will hang some time in good condition, as will also Black Hamburg. Lady Downe's is a valuable kind and an abundant bearer. Its companion white may be found in Muscat of Alexandria, the most delicious of Grapes; and though requiring more heat than the others, it ripens fairly well in the same house with the preceding, but like the Hamburg does not hang well over Christmas; consequently if late keeping is a consideration I would advise Alnwick Seedling, which though new is of proved excellence, or those that look upon new things with disfavour may have two instead of one Lady Downe's. Grapes will then be ensured from July to May.

With a view to a maximum of produce Vines may be planted inside the house on the opposite side to where the permanent Vines are shown in the span-roofed house (page 462, last volume), allowing them to fruit heavily for the first two or three years and then cut them out; but unless the owner has resolution they had better be omitted, for planting two where there is only room for one is the sure way of courting failure.—G. ABBEY.

#### STANDARD ROSES.

It seems rather my fate to be on the unpopular side. I stand up almost single-handed for Hybrid Teas, and now the current seems setting almost equally against standard Roses, in which I believe far more fervently. The Briar standard is the English stock. It is found in all our hedges, and if only properly selected and properly cared for flourishes in all our gardens, most especially in strong soil, where it does far better than the Manetti; also I maintain, other things being equal, a good standard cut-back yields finer blooms. It stands to reason that a larger body of sap will flow up a stem so much larger in diameter; while, again, it is far easier to bud than the dwarf Manetti or seedling Briar stocks. How charmingly Shakespeare describes that process—

"You see, sweet maid, we marry  
A gentler scion to the wildest stock,  
And make conceive a bark of baser kind  
By bud of nobler race."—(*Winter's Tale*, iv., 3.)

When budded, if care is taken to wax over the Briar top, there is no reason, with a good stock, that it should not flourish for years, always excepting a winter like the present. But there are exceptions to all rules, and even this seems to be ending in a survival of the fittest. We are getting a good idea of the hardiest Roses. There are Briars and Briars no doubt, and some smooth-wood sorts are never likely to live long or to stand much hard weather; but give me good strong soil and plenty of room, and I should distinctly prefer a bed of standards to any other. I venture to think they are by no means exploded, and very little likely to go out of culture altogether. There are many places they occupy where Roses on the Manetti or on their own roots would be entirely out of place, and utterly unable to produce the effect required. At the same time I quite sympathise with Mr. Thomson's melancholy

feeling in looking at the bed of four hundred standards. If I might offer a suggestion it would be not to root them all up, as the Briar is probably alive half way down, and likely to throw out very strong side shoots for budding.

To turn to another point. All readers of the Rose Journal must have rejoiced to find "WYLD SAVAGE" again discussing about his particular pets—Tea Roses. I do not despair of even seeing him return still more fully to his old love and again exhibit,

"On revient toujours  
À ses premiers amours."

Or in more homely English—

"Old porridge is sooner heated than new-made."

One other point I have to remark on, and that is what has been written respecting Maréchal Niel on its own roots. Abundant proof has been given that it may be as glorious in this way under glass as any other, and the descriptions have been enough to make us all long to order for it a palace of crystal. As far, however, as my own experience goes I have found that, though it strikes readily enough, the plants on own roots are always feeble. Possibly, if one could wait long enough (like the man who bought a raven, to see if the bird really did live a hundred years), it might give satisfaction; but budding on the Banksia or seedling Briar gives far more rapid growth. The late Mr. Webb of Calcot near Reading grew it to a large extent from cuttings as well as otherwise, but then there are some soils which will do almost anything. I find on a light hungry soil that there is hardly a Tea Rose of any kind on its own roots which will supply me with an exhibition bloom.—A. C.

#### TOMATO CULTURE UNDER GLASS.

As the demand for fresh Tomatoes now extends over the greater part of the year, the cultivation has necessarily undergone a great change. To grow Tomatoes to the best advantage a house specially adapted for them is required, and in these dull times a new house cannot always be erected; but in gardens where the cultivation of the Pine Apple has nearly ceased to be one of the main features of the establishment, one of the Pine-growing structures might advantageously be converted into a Tomato house, as there is at disposal a good command of bottom heat, and a broad bed the length of the house.

Sow the seeds in a rich soil in pans or pots, and plunge them in gentle bottom heat from January 1st to the end of April, according to the time the plants may be required. Prick out the young plants in small pots, and when these are filled with roots shift the plants into 5-inch pots. The soil should be rich. Perhaps some persons fail in growing Tomatoes because they employ too poor soil. In preparing a bed employ rich loam, well-decomposed cow manure, leaf soil, and a little sand, and place out the plants directly they are large enough. Plants raised from cuttings inserted in September or October are very suitable for early planting. They should be from 6 to 7 feet apart, with a stake to each. Maintain a steady night temperature of 55° to 60°, rising to 70° or 75° by day when the sun shines brightly, affording them also a little bottom heat and a moderate degree of moisture in the atmosphere, and as the days lengthen increase the temperature. The utmost care should be taken in training and tying. Let the main stem extend to the top of the house before stopping it, and pinch the side shoots the first joint from the flower. The growth which ultimately comes from that should be permitted to extend until flowers appear; then stop it again, continuing the process until the house is filled with growths. Do not allow the foliage to become too crowded, and attend to watering, especially during dry weather, weak liquid manure being beneficial when the plants are heavily cropped with fruit. Supplies of fruit will thus be obtained until November.

To have Tomatoes all the year round pot culture must be resorted to, plants being raised from cuttings taken in July and grown on with careful attention. Their final shift should be into 10-inch pots in a rich soil, and fruit them in a house where the temperature is between 60° and 70°. In November do not cut down the plants that have been bearing all summer; on the contrary, lower the temperature of the house and diminish the supply of water, this being the period of rest. Clean the house thoroughly, washing all the glass and woodwork, and limewash the walls. The plants during summer have a tendency to become crowded; therefore cut out all superfluous wood in winter, leaving enough for another season. A good top-dressing of rich loam and well-decomposed cow manure should be given to the bed to invigorate the plants. Assuming all this has been carried out by the middle of December, the plants should be started the second week in January with a night temperature of from 55° to 60°, rising to 70° or 75° on bright days with a little bottom heat and a

moderate degree of moisture, increasing all as the season advances. If the crop was large last season assuredly it will be better this, the plants bearing abundantly with a decided superiority in quality of fruit. This mode of Tomato culture is not generally practised; it is nevertheless good, hence this record of it in the Journal.—WM. MUIR.

#### CHIONODOXA LUCILIAE.

ONE of the most beautiful hardy spring-flowering plants is that represented in the accompanying engraving; and though it has only been in cultivation during the past two or three years it has already attracted much attention, and is likely to become very popular, rivalling the Scillas in its lovely blue flowers. A recommendation of inestimable value is its extreme hardiness, which has been well proved during the past severe winter in several gardens, but particularly in Mr. Ware's Hale Farm nurseries, Tottenham, where clumps of plants are in excellent health and



Fig. 57.—Chionodoxa Luciliae.

flowering most profusely. From a single plant selected from one of these clumps the engraving has been prepared, and well represents the general character of the plant both in habit and the form of the flowers. In colour the latter are light blue, nearly white in the centre, the blue tint becoming darker towards the points of the petals, thus imparting a very delicate and distinct appearance to the flower. A rich soil and well-drained border are needed to grow it to the best advantage, similar soil being also required when the plant is grown in a pot, for which it is very well suited.

It is a native of Asia Minor, and was first found by Boissier on the Western Tmolus in 1842, about 1000 feet above sea level; but the honour of introducing it to cultivation is due to Mr. G. Maw of Benthall Grange, who thus describes the locality where it was found:—"The specimens were obtained the first week in May, 1877, in ascending the Nymph Dagh, east of Smyrna, at elevations of from 3000 to 4300 feet. At the lower level it was



out of flower, but near the summit of the mountain a great mass of it was met with in full splendour, forming one of the most sumptuous displays of floral beauty I ever beheld; a mass of blue and white resembling *Nemophila insignis* in colour, but more intense and brilliant. Close at hand were Tulips of several species, yellow *Fritillarias*, *Galanthus Elwesii*, yellow *Gageas* of several species, *Crocus*, *Colchicum bulbocodioides*, *Scillas*, &c.—a perfect paradise for the bulb-collector and the botanist."

Since then the plant has been several times exhibited at the meetings of the Royal Horticultural Society by the introducer and others, and is now becoming well known, but is rather scarce at present.—L. C.

#### MORE ABOUT FOOD AND VEGETABLES.

POPULAR prejudice is at present almost an insuperable barrier to progress in practical acquaintance with the properties of food and the mode of preparing it for use. Whether or not in ten years' time the children now under instruction in Board and Government schools will be sent out wiser and better economists than their parents remains to be proved. I have doubts. Things are too easily found. All the materials for the system of education must be supplied. Little account is taken of waste or carelessness. It might astonish many a poor student of former days who, by much self-denial and long waiting, came by the coveted books that brought him knowledge and led him perhaps afterwards to fame, could he see the recklessness with which books are treated now, and the little care that is taken to make children responsible for the care of materials they handle.

Hitherto the parents of boys and girls entering their first service almost invariably impress upon their children advice they are sure implicitly to follow—viz., to eat as much animal food as they can. Soups and vegetables are often rejected in favour of a more ample supply of meat—meat, we may observe, more gross and indigestible in proportion as artificial feeding has been resorted to to bring the animal to an earlier maturity and a marketable value.

Cheap sugar may be a boon; but here again prejudice fails to understand that adults often vitiate the value of the nourishment of a whole meal by an undue use of sugar, which in excess creates fermentation, does not agree with many persons, and often aggravates rheumatism and other kindred affections of the blood. Bread is frequently indiscreetly given; sweet and delicious crusts thrown aside the sooner to reach the crumb; mastication is too much dispensed with; and the new and soft pulp, too easily bolted, opens up the avenues to indigestion, languor, and other ailments.

Lectures on cookery appear as yet to have made little perceptible impression, not to say alteration, in our national habits. Cabbages are still boiled with the bacon, parting with all their saline properties in as little water as possible; Potatoes generally getting too much, though steaming is becoming more usual than it was. A lady friend of mine, asked what she thought could be done to improve the condition of girls and instruct them better, replied that she thought we were as far from success as ever, instancing the case of an intelligent girl who had been seven years in her service preferring to cook mutton chops by putting them on a cold dripping tin in the oven to doing them as she had been taught to do. Another lady mentioned that in her household she found increasing difficulty in persuading girls to enter the kitchen as scullery or kitchen maids, where, though generally the hours of labour are shorter and the pay greater than in other departments of domestic service, more care and more patience are necessary to satisfactory results.

But these remarks are already too long and much remains to be said. Let me conclude, in compliance with a suggestion from "WILTSHIRE RECTOR," by a receipt for a simple pudding where there has been a full meal of meat and when vegetables are scarce.—A. M. B.

*Lemon Water Sago Pudding.*— $1\frac{1}{2}$  pint of cold water, the very thin rind of half a large Lemon or one small one, the juice of one large Lemon or two small ones, 2 ozs. loaf sugar, one small teacupful of pearl sago. Bake very gently in a slow oven for two hours. Cold in summer it forms a refreshing jelly, and can be turned out like a mould.—A. M. B.

EXTENSIVE CUCUMBER PLANTING.—Many of your readers here were much interested in the account of Mr. James Whittaker's new Cucumber house (page 178). But why does Mr. Whittaker prefer it in one length to several shorter and more easily managed houses? and is it a span or lean-to? We have several Cucumber houses around here, but notably those of Mr. Wm. Thomas, who has six houses, each being 100 feet long, and all in a square block as it were; this I should imagine is a much better plan. Perhaps

Mr. Whittaker has reasons for building the house in one length, if so possibly he will inform us what the advantage is.—W. ROBERTS.

#### ROSES IN POTS AT SOUTH KENSINGTON.

AMONGST the many objects of interest at the Exhibition held in the conservatory on the 22nd inst. there were few that attracted more attention than the charming group of Roses in pots exhibited by Messrs. Paul & Son of Cheshunt. The plants in themselves were perfect, of the size that most amateurs can appreciate, and certainly exceeded in beauty those huge giants which the same firm is in the habit of exhibiting later on; while the opportunity that it gave of seeing some of the newer varieties, and seeing what their merits are in pots, confirmed in most respects the judgment already formed of them. Duke of Teck has established itself, not only as being one of the best exhibition scarlet-coloured Roses that we have, but also the very best of that colour for pot cultivation. Another seedling from Cheshunt was also exhibited, which, if it stand the test, is to bear the name of one of our most successful rosarians. It is a Duchesse de Caylus style of flower, but with the vigour of constitution and habit which that very beautiful variety lacks, and on account of which it is so seldom found on the exhibition table; should it not belie its promise it will be a valuable flower. Madame Alphonse Lavallée is a very beautiful Rose, and when I say it bears a very suspicious likeness to Marie Baumann that point will be readily conceded, but I fear it is too much like it to be considered distinct. It has the same weak footstalk and the same foliage; in fact it seemed as like Marie Baumann as Marguerite Brassac is to Charles Lefebvre. William Warden, a sport from Madame Clemence Joigneaux, originated by Messrs. Mitchell & Son of Piltown, and which I have more than once noticed in the Journal, was charming in the freshness of its pink flowers; and if it retain its character, which most of the sports of Madame C. Joigneaux do not, it will be a Rose much looked after. Another fine Rose was Egeria, raised by Mons. George Schwartz, but sent out by Mr. Henry Bennett. It is an improved Princess Mary of Cambridge, and is beautiful both in colour and form. Near it was a plant with only one bloom on it of my old friend Margottin's Gloire de Bourg la Reine, a brilliant scarlet flower with most intense deep centre, giving it a most attractive appearance. It was not very full as shown, but it is sure to meet with favour for the brilliancy of its colour. These were the most noticeable of the new flowers; and amongst the older varieties were, as has been already noticed, some beautifully flowered and well-grown plants. Altogether the exhibit was a cheering one—a herald, too, of good things to come.—D. Deal.

P.S.—I would take this opportunity of thanking several kind correspondents, some known and others unknown, for expressions of sympathy and offers of help in the present condition of my once flourishing collection of Auriculas. I must, however, as I have said, wait patiently and see before I venture any further whether the experiment I am about to try will be successful.

#### COTTAGE GARDENING.

HAPPY is the cottager who was able to dig or trench his garden as soon as the crops were cleared from it in autumn, for now he has the soil sweetened and softened by the severe frosts of the past winter ready to his hand for cropping, and he is able to take advantage of the first fine weather of spring to plant his early Peas, Beans, and Potatoes. William Russell, to whom I let a cottage with a sadly neglected garden last autumn, is evidently aware of this, for he has contrived to trench quite half of it during winter, and when I went past the other day cropping had been commenced, and the trenched soil was evidently quite ready for it.

Potatoes are the most important vegetable in a cottage garden, and the best varieties are Myatt's Ashleaf, Early Rose, and Magnum Bonum—all sure and abundant croppers. As the early Potatoes are taken up fork up the soil lightly, and sow Early Snowball Turnip row by row at once without waiting till all the Potatoes are lifted, and thus secure a useful second crop. Of Peas the first should be Ringleader, and the later sowings G. F. Wilson or Champion of England. Do not sow two rows of Peas side by side, but have them 12 or 20 feet apart, with lower-growing vegetables between. Try also to have Scarlet Runner Beans in single rows, as by so doing the crop is much heavier than if one row is crowded by another. Grow Student Parsnip, James's Intermediate Carrot, White Spanish Onion, Cole's White or Red Celery, Wheeler's Imperial Cabbage; and for winter Drumhead Savoy and Cottagers' Kale, Leamington Broccoli, and Veitch's Autumn Giant Cauliflower, Giant White Cos and All-

the-Year-Round Cabbage Lettuce. These are all really good vegetables, equally good for table or prizewinning.

By all means sow seeds early, but do not do so till the soil is quite ready. It is far better to wait a week or two for this than to risk the losses which so often occur where seed is sown in soil that is cold and wet. Pig dung and wood ashes are the cottagers' manure, and he can want no better if he has enough of them. House slops, especially soapsuds, are good for all growing crops; none should be wasted, but all should be poured in a covered tub and thence applied regularly, especially to Celery, Cabbages, Lettuce, Onions, and Peas and Beans. Strawberries, Raspberries, Currant and Gooseberry bushes, are all wonderfully improved by it. When applied in hot weather it is well to stir the soil first with a hoe and to scatter a little litter over the surface afterwards, or much of the goodness of the sewage is lost. Frequent stirring of the surface is always good for the crops, keeping down weeds and opening the soil to the sweetening influence of the air. In applying sewage or water do not pour it upon the crown of the plants, but close alongside them. Lettuce and Celery are both liable to have decayed centres if watered carelessly. Take care to water thoroughly; an abundant watering twice or three times a week is far better than a mere wetting of the surface daily.

All cottagers should keep bees, and I would again point out the importance of having plenty of sweet-scented flowers for them. What can be more beautiful than bowers and arches of Honeysuckle? The first sowing of Sweet Peas should be ready for the sticks now; more should be sown, and a regular succession of them and Mignonette kept up till as late as possible in autumn.—EDWARD LUCKHURST.

#### MR. DAY'S ORCHIDS.

TO-DAY (Thursday), the sale of the noted collection of Orchids at High Cross, Tottenham, commences at Stevens's rooms, and will be continued at intervals until one of the finest collections in the kingdom has been distributed. It is a matter for general regret among orchidists that the numerous rarities and handsome specimens which have taken so many years to bring together should be again widely dispersed; but there is the redeeming point, that many who have long envied Mr. Day the possession of some rare species will now have an opportunity of obtaining them. Therefore a few notes upon this fine collection of Orchids may be of interest to some readers who have not had the privilege of visiting it.

About ten houses, chiefly span-roofed structures, and from 30 to 60 feet or more in length, were on my visit exclusively occupied with Orchids, all the chief genera being represented by large numbers of plants. Cattleyas and Lælias are particularly fine, such well-known forms as Cattleya Trianae, C. purpurata, Lælia elegans, and L. crispa being represented by very handsome specimens. The pretty little Lælia cinnabarina was flowering, its small orange-coloured blooms being suggestive of its ally L. harpophylla. Vandas and Aerides are similarly abundant and vigorous, among the former being some fine examples of V. tricolor, including the beautiful Dalkeith variety, the rare V. Parishii, V. Lowii, and V. gigantea, the latter bearing several of its large yellow flowers. Phalaenopsids, too, constitute a great feature, and have this year been uncommonly fine; even now there is a handsome display of P. amabilis, P. Schilleriana, and P. grandiflora. Of the latter there are some extremely beautiful varieties, one bearing about a dozen flowers, each over 5 inches in diameter, and with fine petals 2 inches broad. One form of P. amabilis, too, is especially noticeable for the deep tint of red in the lip. The rare P. Mannii (see page 257) is also flowering freely. In the same house Angraecums are doing remarkably well, A. sesquipedale and A. citratum being especially noteworthy. One specimen of the latter had a spike about 1½ foot long, and bearing forty flowers—the finest example I have seen of this beautiful Orchid. All the principal Cypripediums are grown, some of the plants being very large. One now in flower, named C. barbatum grandiflorum nanum, is remarkable both for the great size of the flowers and the dwarf habit of the plant, to which characters it owes its name. Dendrobiums, Epidendrums, Oncidiums, Saccolabiums, and numerous genera are similarly largely represented, and to indicate the species grown would fill a volume. Among the cool house Orchids Odontoglossums are grandly represented, many hundreds of plants being grown. O. crispum, O. gloriosum, O. vexillarium, O. cirrhosum, O. odoratum, O. Halli, O. Pescatorei, O. triumphans, with many others, some well known and some extremely rare, entirely fill a large house, while Masdevallias are almost as numerous. Of the latter the rare M. trochilus was recently in flower,

and the true M. Chimæra, both more singular than beautiful, but highly interesting to botanists. It is almost needless to say that Mr. Gedney, the gardener, had all the plants in excellent condition, and no doubt some high prices will be realised for them. These necessarily brief notes scarcely do justice to this grand collection, but it will enable some idea to be formed of its extent.—L.

#### DESTROYING THE AURICULA APHIS.

IN reference to an article on Auriculas and woolly aphids by "D., Deal" (page 209), I may state that we were quite free from that pest until April, 1878, at which time we had some new varieties, which were placed in a frame with our stock. I did not discover the insect until the following August, when the plants were repotted, and I then found the new plants badly infested on the roots and the collar, and it had spread to a great extent over the whole stock. I dissolved 4 ozs. of soft soap in a gallon of water, and added a quart of strong tobacco water; I then had the plants shaken out, and dipped the roots and collar up to the foliage in the mixture. I placed them on the potting bench for a quarter of an hour, and then washed the roots in clear water and repotted the plants. The old soil was burnt, and the pots were placed into a large tub of water containing soft soap. I have never found any trace of woolly aphids on the plants since. We have had three different batches of new Auriculas, all of which have been accompanied by the same pest, which has been destroyed in the same way, with the exception of two plants, one of which was watered with paraffin and one with Fir tree oil, half a pint of oil to 2 gallons of water. I forget to what extent the paraffin was diluted, but the roots and the aphides were killed in each case although the plants lived. If "D., Deal," could be induced to try the former experiment I think he might still linger on as an Auricula grower.—J. L.

#### FANCY PANSIES.—No. 3.

(Continued from page 497, last vol.)

AFTER the terrible weather we have experienced of late it is somewhat difficult to fix the mind or memory upon a subject associated with warmth and brightness; but the advancing season and the hope it engenders act as a stimulus to the effort. Where a family is as numerous as Fancy Pansies, and where there are so many resembling each other, a selection becomes no easy task, especially as there has been no attempt made to divide them into classes as in the case of Show varieties. Under these circumstances I submit the following list of forty varieties with every deference, knowing that what may suit my taste will be rejected by others equally able to judge that important qualification harmony of colour. Smoothness, form, size, and dissimilarity have been considered, and many old favourites have been mercilessly rejected because of some imperfection. The varieties named, I may say, have been selected from upwards of five hundred that have passed through my hands, and they are the kinds from which I should elect to choose a box of twenty-four or thirty-six for a strong competition. The list, it should be remembered, includes the best of the new varieties sent out last year.

*Agnes M. Scott.*—Dark violet purple blotches; upper petals shaded lilac, edged all round with straw colour. *Attraction.*—Very dark blotches shaded with rich crimson, edged all round with yellow. *Cabul.*—Dark crimson self; good eye, large blotches. *Capt. Tomlin.*—Violet blotches, shaded pink and edged white; upper petals deep lilac edged white. *Champion.*—Pure white self; large solid dark velvety blotches. *Countess of Strathmore.*—Clear white self, with large solid blue blotches. *Duchess of Edinburgh.*—Primrose self; large dark blotches. Smooth and of good form. *Effie Walsh.*—Large violet purple blotches on all the petals, with a well-defined white margin round each petal. Very smooth and constant. *Frederick Gifford.*—Maroon blotches; very neat eye; upper petals and margin of blotch rich earmine, with a narrow wire edge of yellow round all the petals. *Fred Perkins.*—Creamy violet; rich velvety black blotches, surrounded by rosy crimson. *F. W. Leland.*—Upper petals violet veined with crimson; under petals large, dense violet blotches margined with pale lemon. *George Rodgers.*—Dark velvet purple self, with soft blotches and good eye, with a very narrow white edge round the under petals. Smooth and of good substance. *George Wood.*—Very rich light crimson, with dark blotches on side and under petals. *Gladiator.*—Very large dark blotches edged and veined with crimson and yellow; upper petals heavily margined with crimson. *Grand Monarch.*—Very dark crimson shaded with maroon; large solid purple blotches. *J. H. Borrowman.*—Dark brown self, with dense mulberry blotch; neat eye. *J. T. D. Llewellyn.*—Reddish mulberry shaded with magenta; solid dark blotches, neat eye,



white brow. Smooth, of good substance and constant. *John Currie*.—Rich bronzy crimson edged with light yellow; dark purple blotch; back petals veined with purple and white. *John Young*. Fiery maroon blotches, edged with carmine and yellow. *Jubilee*. Bright golden yellow self; fine eye, large solid black blotch. *Marquis of Bute*.—Cream self, very large blue blotches. *Major Molesworth*.—Rich amaranth self, with solid violet purple blotches; fine eye, white brow. *Miss Horn*.—Large dark blotches, edged pure white; upper petals white and lilac. *Mrs. Crawley*.—Dark rosy purple, with a clear margin of pure white. *Miss Darling*.—Solid maroon blotches; neat eye; upper petals and margin of under petals yellow, with puce margin round upper petals. *Mrs. Hubbard*.—Violet purple blotches shaded with deep rosy lilac, edged all round with pure white. *Mrs. Longfield*.—Yellow and crimson, edged with white. *Mrs. Scott Plummer*.—Bronze and yellow; large crimson maroon blotches. *Mrs. Jamison*.—Deep golden yellow self; solid blotch. *Mrs. E. H. Wood*.—A beautiful deep orange, edged with rosy purple. *Miss M. Methven*.—Rosy crimson; light purplish blotch, edged with pure white. *Pollie*.—Solid dark blotches; violet purple margin, edged round the petals with white. *Robert Conan*.—Exceedingly large brown blotches, edged with bright yellow. *Rev. Archie Bell*.—Very dark blotches edged with cream; upper petals veined with bright purple and cream. *Thomas Grainger*.—Very rich crimson, with black blotches on the side and under petals. *The Bride*.—Pure white self; large dark velvety blotches. *W. H. O'Shankey*.—Dark blotch; reddish crimson margin. Smooth and of good substance. *W. M. Welsh*.—Maroon blotch; upper petals shaded with crimson lake. *Wm. Melville*.—Back petals rosy purple; fine dark blotch edged with yellow. *Waverley*.—Rich bright crimson self; large dark blotches; solid eye.

Of the above the best twelve for exhibition purposes, having regard to evenness of size and dissimilarity, are Attraction, Capt. Tomlin, Duchess of Edinburgh, F. W. Leland, George Rodgers, J. T. D. Llewelyn, Miss Minnie Methven, Major Molesworth, Mrs. Crawley, Mrs. Jamison, Mrs. E. H. Wood, and Wm. Melville. These are all good growers, and may be depended upon for bloom from May until the end of September.

Before concluding I should like to express the hope that before long an attempt may be made to bring Fancy Pansies into classes. The high position they have so rapidly attained, not only as exhibition flowers but as bedders—(for I know of no prettier sight than a bed of Fancies where their beautiful and varied colours are grouped for effect)—claims for them this attention, and the rapid improvement of certain types will in a short time render the task less difficult than it appears at first sight. We have now a charming variety of selfs, broad and narrow, white, crimson, and yellow-edged, and Picotee-edged, and it appears necessary that certain well-defined rules should be laid down or the family will run wild beyond redemption. Unless something be done the question will soon prominently arise as to what is a Fancy and what is not. I have already seen in different catalogues the same flower classed as a Show and as a Fancy. This has arisen solely because there is no authoritative decision as to the size of the blotch, and until this is arrived at there will be confusion. A large bold blotch is essential in a Fancy, and no limit can be placed upon its size; but in a Show there must be a limit, or the flower loses its distinctiveness.—M. H. MILLER, *Leek*.

### MULCHING FRUIT TREES.

GARDENERS and fruit-tree growers generally are well aware of the advantage of mulching the ground over fruit-tree roots, but the time of doing it is not so well settled; consequently some mulch early in spring, others at midsummer, and many not until the fruit is gaining size and maturing in autumn. In my opinion the matter is of too much importance to be carried out in this indefinite manner, and it would be well if we could all agree as to the best time to mulch and act accordingly. Giving my experience and opinion towards this, I may say that all our principal fruit trees, especially those against walls, are always mulched before the buds begin swelling in spring, and of all the times I have seen tried that appears to be the best. The trees have the full benefit of the nourishment from the manure throughout the whole season of their growth, and they need this as much when the fruit is forming and the young growths starting as they do in autumn. In fact, inducing any tree to start freely into growth in spring is of more advantage in autumn than any little extra attention just at that time. Light straw manure is of no use for mulching, as it neither keeps the soil moist in dry weather nor affords nourishment. For mulching I prefer good cow dung before it is much decayed, and always employ it in this state. The manure need not usually be spread more than 4 feet from the

stem of the tree, and in some instances less than this will do. When applied in spring to last all summer it should not be less than 4 inches thick, and it is a good plan to previously break up the surface of the soil over the roots with a fork.—M.

### THE TULIP.

HAVING read with great interest your report of Mr. Shirley Hibberd's lecture on the Tulip in last week's *Journal of Horticulture*, I send you the following passages from the "Life and Letters of Ogier Ghiselin de Busbecq," just published by Kegan, Paul, & Co. De Busbecq started for Constantinople Nov. 3rd, 1554. At the beginning of the "Life," vol. i., page 69, the author says: "A tradition still lingers at Bousbecque of the beautiful garden which he formed, and the Lilacs, Tulips, and other new plants with which he filled it;" and in vol. i., on page 62, the author says, speaking of Vienna in 1572-3: "Here he received parcels of Tulip bulbs and other rare plants from Constantinople;" and on page 107 of vol. i. of the "Letters" De Busbecq says: "After stopping one day at Adrianople we set out to finish the last stage of our journey to Constantinople, which is not far distant. As we passed through these districts we were presented with large nosegays of flowers, the Nareissus, the Hyacinth, and the Tulipan (as the Turks call this last). We were very much surprised to see them blooming in midwinter, a season which does not suit flowers at all. There is a great abundance of the Narcissus and Hyacinth in Greece. Their fragrance is perfectly wonderful; so much so, that when in great profusion they affect the heads of those who are unaccustomed to the scent. The Tulip has little or no smell; its recommendation is the variety and beauty of the colouring." See also in the "Life" vol. i., page 3: "We cannot turn to our gardens without seeing the flowers of Busbecq around us; the Lilac, the Tulip, the Syringa. So much was the first of these associated with the man who first introduced it to the West, that Bernadin de St. Pierre proposed to change its name from Lilac to Busbequia."—SAN JUAN.

### STRAWBERRY FARMING.

(Continued from page 152.)

*Marketing*.—Until within the last few years the great bulk of the Strawberry crop found its way in a fresh state to the dessert table, and the demand, though steady, was limited and subject to much fluctuation. At the commencement and close of the season prices ruled high, but during the height of the gathering the markets were frequently glutted, and prices consequently fell to a low figure. The rapid growth of the trade in preserved fruits has now, however, opened an outlet for almost any quantity of Strawberries. Although the price of Strawberry jam is considerably higher than that of most other small fruits, it is so much esteemed that stocks of it in makers' hands are generally first exhausted. The probability is that for years to come the demand for this fruit will be practically unlimited. Fortunately for growers there is small chance of foreign competition doing much harm, as the fruit is too perishable to be imported from any great distance in a fresh state, and the quality of foreign-made preserves is not likely to take the taste of the British public.

Large growers ought to provide the means of taking advantage of either the home or foreign market as prices may tempt. Growers in this quarter were for several years entirely at the mercy of a few leading local confectioners, who made the prices to suit themselves, and frequently by refusing fruit in the very height of the season created such a panic that prices suddenly fell 50 per cent., and then they bought all they could get. Latterly, however, the district has been visited by buyers from Dublin, Liverpool, &c., and, under the influence of this competition, and the opening of markets for fresh fruit, prices have risen to a steady figure of £28 to £32 per ton.

There is considerable advantage in having at least part of the crop purchased by a confectioner. The cost of picking is considerably less than when gathering for table use, no selecting being necessary; and as the fruit may be taken before quite ripe, twice a week instead of thrice is often enough to go over the ground. In rainy weather and when the fruit is soiled much would be lost were it not for the confectioner; thus a few shillings less per cwt. may be more than made up by the greater economy in wages and waste. For preserving purposes the fruit is always sent out in small barrels. Empty butter casks are very often used for this purpose after being thoroughly cleaned, re-hooped with iron, and fitted with hinged lid, hasp, and handles. As the railway rate for empties are comparatively trifling these barrels are usually made strong enough to last several seasons. Of course the fruit is first gathered in baskets without the husks, and all soiled fruit



kept by itself. The latter is dipped in a tub of clean water and left to drip for a few minutes before being added to the dry fruit, and the whole should be left in the baskets in a cool place until about to be sent off. If possible the fruit should be despatched the same day it is gathered, as it is very liable to mould in the barrels.

Various systems are employed for sending Strawberries to market in a fresh state. The most usual is probably the punnet or chip basket. The Newcastle market favours 10-lb. trays of wood. Others use hampers with Cabbage or Rhubarb leaves to separate the fruit into quarts or pints. When I began to raise Strawberries I saw that I could not tolerate either system. The punnets being round could not well be packed in square hampers without loss of space. They necessitated some expensive means of preventing them crushing into each other. The 10-lb. trays were too large. Cabbage leaves were not to be thought of. Finally I resolved on having a light box to hold a quart. Fifteen of these form a tier in a light wooden crate holding three tiers of boxes, with a pair of light racks to prevent the upper tiers touching the berries below. These crates of forty-five quarts weigh when sewed up about three-quarters of a hundredweight, and being fitted with iron handles are quite manageable by one man. After three seasons' experience I cannot see that I can improve upon them. They carry the fruit safely hundreds of miles, and they are being generally copied by other growers. They are not at all expensive, each quart box only costing me one halfpenny, and the crates about 2s. each.

The fruit is gathered at once into these boxes, four or six of which fit into a sort of basket on feet carried by each picker; green Strawberry leaves are laid on each box when filled, and the filled boxes are exchanged for empty ones and transferred to the crate. Since I adopted this system I have found that it is very similar to that usually employed in the United States.—WILLIAM RAITT, *Blairgowrie*.

#### TROPÆOLUM MAGNIFICENT.

THIS is a bedding plant of excellent habit, with flowers of great brilliancy and beauty. I question if any other plant so effective and striking has been introduced to the flower garden during the last forty years. For many years I have annually visited the gardens of the Earl of Ellesmere at Worsley Hall, under the able management of Mr. Upjohn. In September, 1879, I noticed several large oblong square beds in front of the Hall densely covered with this Tropæolum, which was then new to me. Mr. Upjohn said he did not know what its name was; he found it at a small place and begged some cuttings. I remember the first appearance of Defiance, Miss Trotter, and Crimson King Verbenas, and the introduction of the brilliant Pelargoniums Glow and Vesuvius, but this Tropæolum for effect eclipses them all. I asked Mr. Upjohn for a few cuttings, which were readily given. He told me it is rather difficult to strike in autumn, and difficult to keep in winter. Some of the cuttings were inserted in a cold frame, and some in a warmer place. Those in the former succeeded best. About twenty weakly plants were wintered here, and in the spring last year about one thousand plants were obtained from them, and sold amongst other bedding plants. Wherever seen they were admired, and they gave great satisfaction to all who tried them. Probably this Tropæolum never had a name, and hence I have called it Tropæolum Magnificent.

It is very dwarf and compact in habit, and answers well for massing, ribbon, and scroll borders in the flower garden. My difficulty last year was to find plants dwarf enough to associate with it in a ribbon border. I planted Lobelia compacta in front of it, and Viola Purity behind it, but they were both much taller. Mr. Upjohn fringes his Tropæolum beds with Cerastium tomentosum or something similarly white and dwarf. The great characteristics of the variety are its productiveness of flowers, which come from every joint, and its persistency in flowering till frost kills it. In the spring under glass it is as easily struck as a Verbena, and therefore can be rapidly multiplied by thousands. Last year I resolved not to trust again to autumn-struck cuttings, and hence I kept some spring-struck plants in pots, which are now yielding cuttings.—A. PETTIGREW, *Salé*.

#### BENTLEY'S SPRAY DISTRIBUTOR.

It is not often we have to record any additions to the garden syringe; but in the ingenious appliance under notice we have somewhat of a novelty, and one that is certainly not without its uses. In addition to forcing out water from the syringe, hose pipe, or other connection to which the contrivance is attached, the operator can at will apply an insecticide to any particular plant to which it is necessary—that is to say, he can first distribute the insecticide

mixed with water, and by the next movement of the piston eject pure water. At the end of the syringe (see fig. 58) is a reservoir which is moveable; when turned one way the insecticide which it contains is ejected, mixed with water in the form of spray, and turned in another direction water alone is discharged. The action of this peculiar arrangement is shown in the annexed section (fig. 59), and described by the inventor, Mr. T. H. Bentley, Scarborough:—"A represents the main channel of the syringe. *c* represents the valve or inlet of the water, which when drawn in by the piston passes direct down the channel B into A; but the water being forced out—i.e., to water the plants, it returns up channel B, where it meets a certain amount of resistance; this causes a portion of the water to

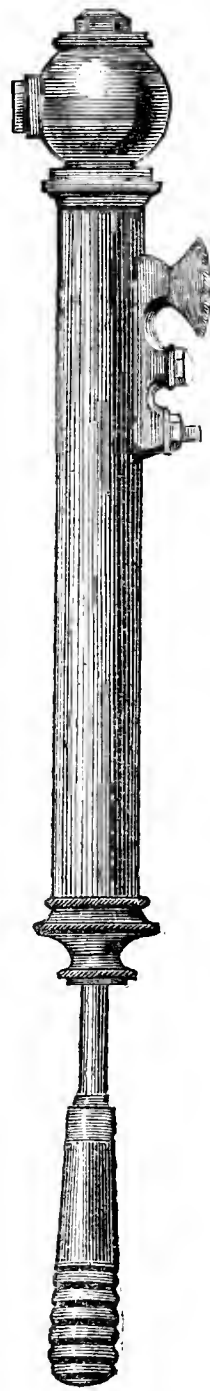


Fig. 53.

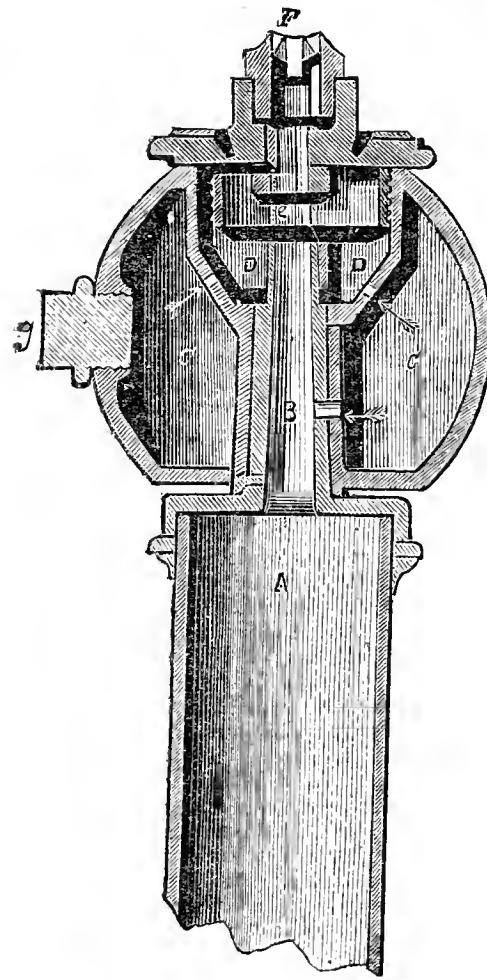


Fig. 59.

force its way through the hole leading in to the reservoir of the poison bulb *c*, which forces in its turn the oils to be mixed into chamber *b*, where the insecticide and main stream of water comes into violent contact in its passage towards the spray-producer *r*, and it is at this stage that the mist is produced by the following simple and effective manner. Two holes are drilled through the jet or spray-producer, which holes meet at a certain angle. The two columns of water, meeting as they do by force of pressure from the syringe, strike together with such force as to thoroughly disintegrate each other and convert immediately the columns of water into myriads of atoms which is the mist or spray, and by this process impregnated with sufficient insecticide to cause the destruction of insect pests. Should the plants be healthy and clean and only require watering, then the bulb *c* has merely to be turned round, when a letter *w* is observed on the top of the bulb, denoting pure water only is passing. The bulb is filled with the liquid by the screw *g*. A letter *r* is also stamped on the bulb or screw; this denotes that poison is charged with the water, but by simply turning the screw round so as to

bring it underneath the row of jets the w appears, and the syringe then is to be used as an ordinary one with such a nozzle attached for spray or a more powerful jet as the operator pleases."

Mr. Bentley's circular shows the appliance in various forms and its modes of application; and we have only to add that the syringe we tried worked admirably. The inventor informs us that Messrs. Corry, Soper, Fowler, & Co., are appointed wholesale agents for the trade.

### ROYAL BOTANIC SOCIETY.

MARCH 30TH.

THIS Society's first spring Show of the year was held yesterday in the corridor and conservatory of the gardens at Regent's Park, and proved one of the largest and best that has been held in recent years. Bulbous plants were particularly numerous, and the miscellaneous collections were both abundant and of excellent quality. The weather was fine, but a cold wind prevailed.

**HYACINTHS.**—Two classes were devoted to these, one for amateurs and the other for nurserymen, the collections in each to contain twelve plants, single spikes. Three collections were staged in the amateurs' class; Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, taking the first prize with handsome plants, the spikes and bells very fine. Mr. J. Boulton, gardener to Captain A. L. Patton, Alpha House, Regent's Park, was a close and good second; Mr. H. Eason, gardener to B. Noakes, Esq., North Hill, Highgate, being placed third with rather poor specimens. Four nurserymen's collections were staged, the chief award being secured by Messrs. Osborn & Sons, Fulham, with an even collection of plants with massive spikes. Messrs. H. Williams & Son, Finchley, and Messrs. Cutbush & Son, Highgate, followed with neat specimens.

**TULIPS.**—There were also two classes for Tulips—twelve pots, four kinds, three bulbs in a pot. Three amateurs' collections were staged, Mr. Douglas again first with excellent specimens, followed by the same exhibitors as in the class for Hyacinths. The chief nurserymen's collection was from Messrs. Osborn & Sons, even and good. Messrs. W. Cutbush & Sons, Highgate, and Messrs. W. Wiggins & Son following in the order named. The other classes for bulbs were devoted to Narcissi, Crocus, and Amaryllises, twelve pots each of the two former and six of the latter. Messrs. Osborn and Mr. J. Douglas were the prizetakers for Narcissi, both showing healthy well-flowered examples. An open and an amateurs' class were provided for twelve Cyclamens. In the former Mr. H. B. Smith, Ealing Dean, and Mr. Wiggins, gardener to H. Little, Esq., Uxbridge, were the only exhibitors, securing the first and second prizes for well-flowered plants. In the amateurs' class Mr. Wiggins and Mr. E. Baxter, gardener at White Lodge, East Barnet, took the prizes, the latter exhibitor also being awarded the third prize in the open class. Messrs. Cutbush, Mr. Baxter, and Messrs. W. Wiggins & Son, Tottenham, were awarded the prizes for Lilies of the Valley in the order named.

**AZALEAS.**—Prizes were offered in two classes, amateurs and nurserymen, for six greenhouse Azaleas in 12-inch pots. They were not very well represented. Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, was first in the amateurs' class with well-flowered specimens; Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was second; and Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstons, Regent's Park, was placed third with rather thin specimens. Messrs. B. Peed & Sons, Norbury Nurseries, Streatham; and Mr. H. James, Castle Nursery, Lower Norwood, were the only exhibitors in the nurserymen's class, staging rather indifferent specimens. In the open class for twelve stove and greenhouse plants Mr. J. Wheeler was first with medium-sized but healthy specimens, the most noticeable being *Hibbertia Reedi* and *Boronia pinnata*. Messrs. B. Peed and Son were second with a neat collection, including a fine variety of *Anthurium Schertzerianum*. Mr. R. Butler was third with moderately good plants.

In the open class for six Amaryllises Mr. Wiggins was awarded the first prize with fair plants, Mr. Baxter being second with specimens bearing smaller flowers but more brightly coloured. Mr. J. Douglas staged the only collection of hardy Primulas, and obtained the first prize for neat specimens, among which plants of *Primula viscosa* were particularly noticeable. He also secured a similar award for six specimens of *Deutzias*. Messrs. Osborn and Sons were awarded the first prize for nine hardy herbaceous plants, and Captain Patton obtained a similar award for twelve pots of Crocuses.

**MISCELLANEOUS EXHIBITS.**—These were very numerous, and constituted a large portion of the display. Messrs. Veitch & Sons exhibited very extensively. One group of about one hundred Roses in pots was very attractive, the plants being in extremely healthy vigorous condition, the blooms fine for the time of year, and the colours rich. About one hundred and forty fine Hyacinths were also staged, some of which were in even better condition than last week—a sufficient indication of their merit. Amaryllises, Coleuses, and other new plants were also shown in large numbers. Silver medals were awarded for the Roses, Hyacinths, and Amaryllises. Mr. B. S. Williams, Upper Holloway, was awarded a large silver medal for a very large and beautiful collection of plants, chiefly comprising Orchids, Amaryllises, and new plants. Many very handsome specimens were shown, particularly *Cypripediums*, and a *Lycaste Skinneri* in a 10-inch pot was shown with thirteen flowers. Among the novel-

ties and varieties those especially noteworthy were *Laelia harpophylla*, with small orange-coloured flowers, narrow self-coloured petals, in the way of *L. cinnabarina*; and *Curcuma zedoaria*, a zingiberaceous plant with a spike of yellow flowers in the axils of reddish or pink bracts. Messrs. Paul & Son, Cheshunt, had a pretty group of small Roses in pots, well grown; among them a plant of a new *Rosa polyantha* named *Anna Maria de Montravel*, with fine clusters of small double white or blush flowers—an attractive variety. A specimen of *Hydrangea japonica* tricolor was also shown with foliage variegated with white and yellow. A bronze medal was awarded for the group, and the first prize for the only collection of six Roses in pots in the nurserymen's class. Messrs. Wm. Cutbush & Son, Highgate, sent large and handsome groups of Tulips, Azaleas, both indica and mollis varieties, and six boxes of Camellia blooms representing some very good varieties. A silver medal was awarded for these groups. Messrs. J. Carter & Co., High Holborn, obtained a large bronze medal for a large group of Hyacinths, *Deutzias*, *Dielytras*, and *Spiræas*, all in good condition. Messrs. Osborn & Sons, Fulham, staged a collection of about two hundred Hyacinths in excellent condition, the majority being considerably better than they were at Kensington last week. A similar collection of Tulips was also shown. A large silver medal was awarded. Silver medals were also awarded to Mr. H. B. Smith, Ealing Dean, for a collection of two hundred remarkably well-flowered Cyclamens, both the white and crimson varieties being excellent; to Messrs. Wm. Paul & Son, Waltham Cross, for a dozen boxes of Camellia blooms, comprising an excellent selection of varieties represented by large and finely-shaped blooms; and to Mr. J. Wiggins for a group of well-grown Cyclamens, Amaryllises, and Cinerarias.

Mr. H. Eason exhibited a collection of unusually fine *Lachenalias*. They were placed thickly in 32 and 24-size pots, some having over twenty very large spikes of flowers. Messrs. Henry Williams & Sons, Fortis Green, Finchley, sent a group of Hyacinths in satisfactory condition. To the former a certificate, and to the latter a bronze medal were awarded.

Captain Patton, Alpha House, Regent's Park, staged a similar group of Hyacinths, Tulips, *Spiræas*, and *Dielytras* to that staged at Kensington, the condition of all the plants being highly satisfactory, some improvement in the two last-named being noticeable. A silver-gilt medal was deservedly awarded for this handsome group.

Botanical certificates were awarded to the following exhibitors for the plants mentioned:—To Messrs. J. Veitch & Sons, for *Anthurium Andreanum*, which has been frequently described; *Gymnogramma schizophylla*, an elegant little Fern from the West Indies, with neat bipinnate fronds, the pinnules linear and bright green. On the plant shown the fronds were 6 to 9 inches in length, but they attain a much greater length than that, are viviparous, and frequently branch towards the base. To Mr. B. S. Williams, for *Laelia harpophylla*, a pretty and rare Orchid, with neat orange-coloured flowers, the petals and sepals narrow, and the lip slightly crisped; *Asplenium Sanderi*, a graceful species suggestive of *A. caudatum*, but with smaller pinnate fronds, the pinnæ being crenated on the upper margin; and *Actinopteris radiata* var. *australis* previously described. To Mr. J. D. Richards, Orchid grower to T. A. Tilley, Esq., Glednow, Leeds, for *Celoglyne cristata* var. *alba*, which differs only from the well-known type in the absence of yellow from the crest on the lip; to Mr. Boller, Kensal New Town, for *Mammillaria Caput-Meduse*, one of the peculiar globular-stemmed species thickly studded with little protuberances bearing a few whitish spines; and *Haworthia Bollerii*, a neat plant with spirally-arranged imbricated bronze-green triangular leaves. Floricultural certificates were awarded to Messrs. Veitch for *Hyacinths Magnificence* and *Primrose Perfection*; the former has a fine spike of large double light-blue bells, the other was described last week. *Azalea Roi Leopold alba*, a grand form of a well-known variety. The flowers are of medium size but excellent shape, white, with a few streaks of crimson, and produced in great profusion; and for the following Amaryllises:—*Storr's Beauty*.—A beautiful variety certificated last year by the Royal Horticultural Society; *Empress of India*.—Flowers large, of good form and very bright scarlet, the petals broad and of excellent substance; *Cecilia*.—Flowers of medium size, petals broad, banded transversely with crimson, tips and centre white; and *Madame Albani*, flowers very neat, streaked with rosy pink and white, a pretty variety. To Mr. H. B. Smith, Ealing Dean, for *Cyclamen Queen Victoria*, a handsome variety with very large pure white flowers, petals broad and rounded; habit vigorous. To Mr. H. Little for *Cyclamen Ruby Gem*, described last week; and to Messrs. Barr & Sugden, Covent Garden, for *Narcissus albo-aureus* with large double flowers, the outer petals very pale yellow, occasionally white, on the centre golden yellow.

**TEA ROSES.**—I have no wish to enter into the controversy originated by your correspondent "WYLD SAVAGE," but I would submit that it is very unusual for a member of a committee to write about what has taken place at their meetings. I have belonged and do belong to a great many, but I have always considered that unless authorised by the committee no one has a right to write about its proceedings. It would destroy all confidence, and effectually hinder useful work being done.—A COMMITTEEMAN.



MR. PETER FERGUSON of Monkwearmouth writes respecting the SIX MONTHS' WINTER—"We had our first fall of snow in this district on the 20th September, 1880, and more or less we have had snow ever since. At the time of writing (25th March) we are having heavy showers of snow every day, with sharp frosts at night. Gardening operations are a long time in arrears, but with brisk drying winds the land will soon be in a good workable condition."

— A MEETING of the ROYAL BOTANIC SOCIETY was held on Saturday the 26th inst., Mr. G. J. Symons, F.R.S., in the chair. Upon the table was exhibited a fine flowering specimen of *Erythroxylon Coca*, the "Coca" of South America, grown in the Society's greenhouse. Professor Bentley said that, although in this country little was known of it, in South America its consumption was calculated at 40,000,000 lbs. per annum, and by the natives considered as much a necessity of life as Tobacco in other countries. Marvellous tales are told of the power of Coca leaf in allaying hunger and stimulating and supporting the body in extraordinary exertions, more especially in that of climbing heights and travelling over mountainous districts.

— MR. W. BOWELL informs us that a LOQUAT (*ERIOTRYA JAPONICA*) in the gardens of Stawell House, Richmond, Surrey, has a fine crop of ripe fruit, comprising about a dozen bunches, each bunch composed of eight or ten beautiful fruits. The specimen may be inspected between 2 and 5 P.M. on application to Mr. Bowell.

— WRITING to us at the close of last week on the WEATHER IN THE MIDLANDS "A GARDENER" observes:—"Frost and snowstorms are the rule here, with a lowering barometer and cold east wind. Well, better now than later. We have scarcely anything green left in the garden; no Broccoli, nor in fact anything except Brussels Sprouts."

— WE have received the following PUBLICATIONS FROM MESSRS. CASSELL, PETTER, & GALPIN:—"Paxton's Flower Garden," part 8, with coloured plates of a very dark-coloured variety of *Bollea cœlestis* and flowering sprays of the double white and red Peach. Several woodcuts are also given in the "Gleanings." The accompanying letterpress gives both descriptive and cultural particulars. "Familiar Garden Flowers," part 26, has coloured plates of the Day Lily (*Hemerocallis flava*) and the Rosy Yarrow (*Achillea asplenifolia*), the former with some general notes on the *Hemerocallis*, history and culture; the principal Yarrow also receiving attention, as well as the one figured. "Familiar Wild Flowers," part 49, contains coloured plates of *Atropa Belladonna* and *Lysimachia vulgaris*, each accompanied by interesting historical notes. The third part of "Illustrated British Ballads" contains "The Beggar's Daughter of Bednall Green," "The Battle of Blenheim," "The Battle of Bothwell Bridge," and several others appropriately illustrated. This is likely to prove a very beautiful work.

— THE first annual EXHIBITION OF SPRING FLOWERS AT BIRMINGHAM will be held in the Town Hall on Easter Monday and Tuesday, April the 18th and 19th. In the fifty-eight classes provision is made for the majority of spring-flowering plants, including Hyacinths, Tulips, and other bulbs, Roses in pots, Deutzias, Spiræas, Dielytras, Azaleas, Epacrises, Cinerarias, Cyclamens, Primulas, Auriculas, miscellaneous stove and green-

house plants, and cut flowers. The prizes range in value from £1 5s. to 2s. Schedules and particulars may be obtained from Mr. C. Redfern, High Street, Birmingham.

— THERE has for some time past been a very extensive display of PRIMULAS AT MESSRS. CARTERS' NURSERIES AT PERRY HILL, but the flowers are fading now, fertilisation having been in great part effected and seed pods commenced forming. The plants are grown wholly for raising seed, hence the object has been to have them small and late instead of large and early, the seed setting more readily during the bright days of spring than the dull days of winter; but if the plants are small the flowers are large, of excellent form, and distinct colours, the whites smooth and pure, and the coloured varieties rich. For the purpose of preserving and improving the strain every plant at all faulty is promptly removed, only those of the best quality being retained for seed. Amongst the stock the "Blue Primula," of which much has been heard, is noticeable. The flowers, now fading, are purplish lilac, previously they were much deeper. This variety contains more of blue in its petals than any Primula in cultivation, and the flowers being good it is worthy of trial, as it may be the precursor of what many covet—a "true blue." When plants were exhibited the day was one of the most dismal and gloomy of the season—a great disadvantage to what many florists consider a decided novelty and a distinct "break" in the family to which it belongs. A deep purple form in the same house is also very telling. The plants referred to occupy a house upwards of 100 feet long and 14 feet wide, and as arranged in groups of the several colours the display has been highly imposing.

— MR. WM. THOMSON, of the Tweed Vineyard, recently communicated a letter to the *Scotsman* upon the WEATHER IN THE NORTH, in which he observes—"We are again, March 21st., in midwinter in this district. Yesterday, from noon till 6 P.M., we had a severe snowstorm. The snow melted as it fell for a time, but in the course of the afternoon the air became colder, and this morning we have 3 inches of snow on the ground, with 8° of frost. Thus, with two short intervals, we have had five months of frost and snow. On the 3rd of November we had 18° of frost, on the 20th 26°, on the 23rd 3° below zero, increasing in intensity till we had 10° below zero on January 17th. The only winters within my recollection that will compare with the present for severity are those of 1837-8, which was as long but not quite so severe, and 1878-9. The winter of 1879-80 had a short period of as intense frost in this district of Scotland, but it was not general, as it has been this winter. It was, however, much more severe in France, Belgium, and many parts of the continent. I think it is evident that no frost has been so destructive to vegetable life for 150 years as that of this and last winter, for I find that there are many Holly, Yew, and other trees killed that must have stood nearly two hundred years. One matter worthy of remark is, that where I have seen nearly all sorts of Hollies, Yews, Laurels, and even Rhododendrons killed, I have not seen a single Japanese evergreen even injured."

— MESSRS. BUTLER, McCULLOCH, & Co., of Covent Garden, have sent us a shilling box of flower seeds, containing twelve packets of seed of popular flowers. The box is very ingeniously constructed, and is admirably adapted for transmission through the post office.

— A CORRESPONDENT, "C. K.," sends us the following paragraph that he has cut from the *Daily News* on PLANTS BLOOMING WITHOUT EARTH, and would like to have further particulars on the subject. So should we; it savours of sensationalism at present.—"M. Alfred Dumesnil, a son-in-law of Jules Michelet and the Editor of the first edition of Edgar Quinet's works, claims to have



made an interesting and useful discovery—how to preserve plants in a perfectly vigorous state without any earth. Since November, 1880, the date at which his researches proved successful, he has, with the exception of a six-weeks stay in Paris, been continually taking plants from the ground and applying his process to them. Has never found the least interruption in their vegetative functions; on the contrary, winter and spring plants have blossomed with a vigour which, as an experienced horticulturist, he has never seen in his garden. With the shelter of a glass, Hellebores taken up at the end of November and the middle of December have remained from two and a half to three months in blossom. Other plants—Primroses, Daisies, Violets, Auriculas, &c.—have not only been in bloom for three months but have thrown out new buds. Bulbous roots, small shrubs, exotic plants, such as Azaleas and Cyclamens, take equally well to the process. M. Dumesnil exhibited some specimens of plants blooming without earth in the Square, Solvère in Rouen, last December; and at his home at Vascœuil, about fourteen miles from that city, anyone may have ocular demonstration of the results he has obtained."

### THE MOTH ORCHIDS.

(Continued from page 236.)

BEFORE describing the other chief species of this beautiful genus there are two modes of culture differing from those already noted which are worth attention. The first is employed almost exclusively for the *Phalænopses* and *Aerides* in Mr. Day's collection of Orchids, and in a few other gardens and nurseries, with very good results. A peculiar kind of cylindrical basket is used, constructed of small bars of teak a foot or more in length and an inch in diameter, connected by wires passed through them, and fixed at a regular distance apart—about a quarter of an inch, by small pieces of metal piping or other suitable material. An open cylindrical erect basket is thus formed; and to render it capable of holding the plants two bars of wood are secured about 4 or 5 inches from the base inside, crossing each other at right angles; upon these large potsherds are placed, filling up with smaller pieces to within 2 or 3 inches of the upper part of the basket. Sphagnum moss with a few small potsherds constitutes the medium in which the plants are grown, and as far as the *Phalænopsids* are concerned in the collection named above appears to be very satisfactory, for it could scarcely be desired to have plants in better condition or with finer flowers. The chief merits of these baskets are that there cannot be the slightest approach to stagnation about the roots of the plants, and they can be placed on a stage like pots or suspended from the roof. The former is, however, the better position, as they can be constructed of any height so as to raise the plants to the requisite distance from the glass. Plentiful supplies of water are needed, especially in the growing season, when it is not easy to give too much, as it passes away so readily; and if a suitable temperature and moisture are maintained the roots grow vigorously, clinging to the bars with considerable tenacity. Where these Orchids are thriving under any other system I would not advise a change, but if much difficulty is experienced with them the plan is well worth a trial, for it is very simple and has proved satisfactory wherever I have seen it employed. The second mode has not so much to recommend it, though it has been employed by a few experienced Orchid growers, but not with very encouraging results. The plants are secured to the side of a porous earthenware pot, which is kept filled with water, a small aperture near the bottom that is plugged with a cork permitting the ready changing of the water when needful. These pots are made with a flat side, so that they can be placed against a beam in any suitable position; but though the plants continue in most cases moderately healthy they are rather weak and flower very poorly.

Returning to the enumeration of principal species the first deserving attention is

*P. grandiflora*.—This is a remarkably handsome plant, and holds a foremost place in the estimation of all Orchid lovers. It resembles the beautiful *P. amabile* in the shape of the flowers, but they far surpass those of that species in size, and the lip is marked with yellow, whereas the same organ in *P. amabile* is tinged with rosy pink. The leaves, too, are of greater length and a lighter shade of green. It was, however, for a long time considered as merely a fine variety of *P. amabile*, and it was not until 1848 that Lindley separated it under the name now given. A good specimen of the plant exhibited by J. H. Schroder, Esq., of

Stratford Green, at a September meeting of the Royal Horticultural Society in the preceding year, and for which a silver Banksian medal was awarded, attracted much attention, and thus led to a more critical examination than had been previously accorded it. By some it is considered as the *P. amabile* first mentioned by Blume, for the species now known under the name is believed to be distinct from that originally referred to by him. It varies considerably in the size of the flowers and the depth of the yellow tint in the lip. The largest-flowered variety that I have seen was an extremely handsome plant, bearing fine branching spikes or panicles with blooms exceeding 5 inches in diameter; the sepals and petals of great substance, pure white and rounded; the lip having a few bright yellow streaks. One variety is named *aurea*, owing to the colouring of the lip being much darker and richer than usual. The species is a native of Java.

*P. intermedia*.—One of Mr. T. Lobb's introductions, and considered as intermediate between *P. amabile* and *P. rosea*, possibly what is termed a natural hybrid, several of which occur in the genus. It is not one of the most handsome, yet possesses an elegance of habit and contrast of rose and white in the flowers that render it a favourite with most growers. The leaves are light green; the flowers being of moderate size with neat white sepals and petals tinted with rose, and a small lip of a deep rosy purple hue. It is found in Manilla. One very beautiful variety is named *Portei*, which surpasses the species in the fine branching spikes bearing more numerous larger flowers, the colouring being similar, but the contrast of tint between the lip and other portion of the flower is more distinctly marked. It continues a long time in good condition, and is further noticeable for its large dark green handsome leaves, which have a purplish tinge on the lower surface, suggestive of *P. amabilis*. It is a native of the Philippines, whence it is said only two plants were first imported to this country several years ago, both of which were at one time in the Broomfield collection, and the plant is still rare both in cultivation and in a wild state. Another delicate pretty form is known as *Brymeriana*, and is chiefly distinguished by the lip being white and marked with crimson. It also is very rare.

*P. Lüddemanniana*.—This is an extremely distinct and beautiful species from the Philippines, which appeared in this country about fifteen years ago, but had been previously known on the continent, where the flowers were first produced on a plant in the possession of M. Lüddemann at Paris. With regard to its introduction to English cultivators, it appears to have been sent out from the Clapton nursery, where, owing to the general resemblance the plant bears to *P. rosea*, it was mistaken for that species, and sold under that name. Plants consequently came into the possession of several Orchid growers about the same time; and at the meeting of the Royal Horticultural Society on May 2nd, 1865, no less than four specimens were exhibited in flower, for which certificates were awarded—namely, by Dr. Pattison; Mr. Charles, gardener to Robert Burnett, Esq.; Mr. Pilcher, gardener to S. Rucker, Esq.; and Messrs. Low. The leaves are about 8 inches long, bright green; the flower spike often exceeding a foot in length, bearing neat compact flowers of medium size; the sepals and petals white barred transversely with brown towards the points, the lower portion being barred with violet purple; the lip rather long, and of a similar tint to the last-named. The markings remind one of the singular *Vanda Cathcarti*. It is unquestionably one of the most distinct and beautiful *Phalænopsids*, and, like others of its relatives, the flowers last for a long time. It is more readily increased than most of the genus, as young plants are frequently produced upon the old flower stems—a peculiar character which some other forms also possess, but not in such a marked degree.

*P. rosea*.—Another of Mr. T. Lobb's introductions from Manilla. A pretty species with rather small flowers, the sepals and petals white with a tinge of rose, the central lobe of the lip being purple, and the side lobes often tinted with dark yellow. The leaves are bright green, slightly tapering from the apex to the base, and the habit of the plant resembles some of the larger-flowered species, though not quite so vigorous. It is not often seen, and cannot by any means take a position with such forms as *P. amabilis*, *P. Schilleriana*, and *P. grandiflora* as regards beauty, though it has the excellent quality of remaining in bloom during many weeks.

*P. Mannii*.—This is well entitled to the attention of growers, as it is one of the best small-flowered *Phalænopsids* at present in cultivation. It is also remarkable for extending the geographical range of the genus into Assam, where it was found by M. Gustav Mann in 1868. Plants were subsequently introduced to England, but there are now very few specimens in cultivation, only being represented in some of the largest collections. The engraving was prepared from a plant in Mr. B. S. Williams's nursery, Upper Holloway, which flowered in one of the houses a few weeks since,

and was referred to on page 95. The leaves are of moderate breadth and bright green, the flowers being produced on spikes 9 inches or more in height. The sepals and petals are narrow, of a yellow ground colour, barred and spotted with reddish brown or pale chocolate; the lip is crescent-shaped and white; the flowers varying in size on different plants from 1 to 2 inches in diameter. The specimen shown was growing in a basket, and appeared in

excellent health, the leaves clean and strong, and the colours of the flowers distinct and bright. It is so very distinct in the form of the flowers from the better-known species that on casual observation it would be scarcely thought to belong to the genus *Phalaenopsis*, though the habit and foliage are more suggestive of the typical forms.

*P. cornu-cervi*.—An ally of the last-mentioned, but not quite so



Fig. 60.—*PHALAENOPSIS MANNII*.

attractive and rather difficult to grow, requiring a high temperature and abundance of water. The flowers are somewhat like those of *P. Mannii*, but there is a greenish tinge in the sepals and petals, and the blotches are of a duller colour, so that it is much less attractive, except when very well grown.

*P. Lowii*.—As regards its native habitat this is perhaps the most remarkable of the genus. It is said to grow upon exposed rocks in Moulmein, where at one time of the year the rains are

extremely heavy, and at another the heat and drought are so great the plant loses its leaves and appears to be almost dead, but revives with the return of the wet season and then makes its growth. Such conditions as these are not easily imitated, and in consequence the plant is rarely seen in satisfactory health. However, it is so attractive that most growers do not spare any attention to induce it to flower, when they are well repaid for their trouble. One of its chief requirements is a light position, and with careful

attention to the supply of water and the maintenance of a moderately high temperature success may be attained. The leaves are dark green, but not of quite such thick texture as most other species. The flowers are of medium size, very neat in form, with rounded white rose-tinted sepals and petals, and a bright rosy purple lip. The species was discovered by the Rev. C. S. P. Parish, and introduced several years ago.

The foregoing are some of the most beautiful Moth Orchids, but there are many others all more or less interesting which it is not necessary to describe at length. For instance, *P. sumatrana* has pretty flowers barred and blotched with reddish brown something like an *Odontoglossum*. *P. casta* with white flowers is regarded as a natural hybrid, under which category *P. leucorrhoda* is also included. The latter is considered as a hybrid between *P. Schilleriana* and *P. amabilis*, resembling the former in the leaves and the latter in the flowers. *P. Veitchiana* and *P. violacea* are also pretty species. Of the last an attractive variety, which has been named *Murtoniana* by Professor Reichenbach, was sent to this country a few years ago by a friend of mine, Mr. H. Murton, Superintendent of the Singapore Botanic Garden, and a specimen flowered at a garden in Cornwall. The flowers are light yellow tinged with purple on the sepals and at the base of the column. *P. amethystina* is another elegant species, but not so showy as most of those described, all of which are well worth growing where there is the necessary accommodation, though *P. amabile*, *P. Schilleriana*, and *P. grandiflora* are represented in nearly every collection.—L. C.



#### FRUIT HOUSES.

*Vines*.—Late varieties started at the beginning of the month will now be moving, and should be syringed freely several times a day, closing the house with a humid atmosphere at 75°, affording a night temperature of 55° to 60°, and 10° to 15° more by day. Syringe the Vines morning and afternoon until the bunches are showing, when it must be discontinued, securing a humid atmosphere by damping the paths, walls, and borders frequently during the day. Any late varieties, also Muscats, must be started at once. Give the inside borders a thorough soaking with water at 90°, and syringe the rods twice a day, maintaining a humid atmosphere by damping the paths, &c., several times a day. To secure an even break bring down the rods of young canes to a horizontal position until all the eyes have started, when they may be tied up to the wires. The night temperature should be maintained at 55° to 60° at night, and 10° more by day, closing at 75° with a humid atmosphere. Houses of Hamburgs for use late in the year should be kept as cool as possible, admitting air freely day and night except when frost prevails, during which time fire heat will be necessary to exclude frost and secure sturdy growth. By the middle of April they will be growing, and must have fire heat to maintain a night temperature of 50° to 55°, and 5° to 10° rise by day. Attend to disbudding, tying out, and stopping in succession houses, and keep the thinning of bunches and berries well forward. No particular rule can be laid down for thinning, as the several varieties differ in form and size of berry and bunch. In a properly thinned bunch every berry should have room to swell without being squeezed, and yet be so close as to preserve the form of the bunch when cut. Hamburgs and other free-setting varieties may be thinned as soon as out of flower, but Muscats and other shy setters should not be thinned until the properly fertilised berries take the lead. Where Grapes are thinned a temperature of 65° at night, or a few degrees more in mild weather, advancing early in the day to 75°, will be advantageous, ventilating from 75°, and maintaining the temperature through the day at 80° to 85° with sun heat, closing early and allowing an advance to 90° with plenty of atmospheric moisture. Keep up a steady circulation of dry warm air in houses where the Vines are flowering, with a minimum temperature of 65° for Black Hamburgs, and 5° more for Muscats. The bunches of Muscats should be brushed over with a large camel's-hair brush when in flower to assist fertilisation. Water all internal borders

requiring it with weak liquid manure, or sprinkle with guano and wash-in with water at 80° to 85°. The fermenting material should ere this have been removed from inside early houses, giving the border a thorough soaking with liquid manure, and mulch with short dung about 2 inches thick. Gradually reduce the atmospheric moisture where Grapes are ripening, and admit a steady circulation of warm air both day and night. Afford plentiful supplies of liquid manure to pot Vines with fruit swelling off, and if the roots extend from the pots into fermenting materials give a supply there as well.

*Melons*.—The first batch of plants will ere this have set or be setting fruit on the first laterals. During the setting a drier atmosphere and drier condition at the roots are necessary, with a few degrees higher temperature both by day and night. Be careful to have three or four blooms open at a time before impregnation, as it is important that all the fruit on a plant be of a simultaneous stage of growth, as if one or two take the lead the others will not succeed. If this occur the fruit taking the lead should be removed unless very early fruit is desired. Directly the fruits begin swelling give the beds a good soaking with tepid weak liquid manure, and place some rich compost previously warmed over the roots, ramming it well down. Maintain a good moisture by damping available surfaces occasionally, and syringe moderately about three o'clock on bright warm afternoons. Do not allow the foliage to become overcrowded, but by frequent stopping and thinning fully expose the principal foliage to light. Place supports for the fruit before they become too heavy. Continue the treatment to later plants advised in former calendars, employing more moisture as the days lengthen and the sun becomes more powerful. Pits and frames where the bottom heat is declining will require thick linings, and careful watching afterwards to allow the escape of rank steam. Avoid overcrowding the foliage, remove every alternate lateral, and keep the collar of the plant clear of foliage, and apply a little quicklime as a preventive of canker. Stop the principal growths a foot from the sides of the frame or pit. If no fruit appear on the laterals at the second or third joint pinch out their points, which will cause them to break, and fruit will then show plentifully. Fertilise the pistillate flowers daily as they become fully expanded, and pinch out the point of the shoot one joint beyond the fruit. When three or four fruits on a plant are set and swelling remove all others as well as any flowers, and attend frequently to stopping and thinning the shoots, watering with tepid water, earthing up the roots, and closing early in the afternoon, sprinkling overhead at the same time when bright. Employ good thick night coverings, watching for slugs and canker at the collar. A few brewers' grains laid at night form a capital trap for the former, and quicklime is the remedy for the latter. Sow for succession and pot off seedlings, keeping them near the glass to insure sturdy growth.

*Cucumbers*.—Plants that have been in bearing through the autumn and winter will need to be renovated at the roots. Remove with a hand fork as much of the exhausted soil as is possible without much injury to the roots, and give some rich lumpy compost previously warmed; press it down firmly, and shade for an hour or two at midday if the sun be powerful. An increase of sun heat necessitates additional vigilance, and if the plants are in good health there will be abundant growth, but otherwise the foliage will flag severely. Either the root action is inert or the night temperature has been kept too high, producing weak growth and thin-textured foliage. If the ill condition of the roots result from worms having possession of the soil expel them by repeated soakings of lime water, a small handful of lime being ample for three gallons of water, and to prevent flagging shade with thin canvas for an hour or two at midday. Healthy plants will hardly need shading at present, but the blinds should be prepared, thin canvas being most suitable. Repeated applications of liquid manure may now be given, always applying it in a weak state, and damp available surfaces in the house at closing time, keeping the evaporation troughs filled with guano water. Damp the house at 7 A.M., and syringe gently overhead at 3 P.M. on warm sunny days, closing the house at the same time. Attend frequently to thinning the foliage and stopping the shoots at one or two joints beyond the fruit. Keep a good degree of heat in pits and frames by the application or renewal of linings. Train and peg out



the growths, and apply water moderately at present as the nights are still cold, employing good night coverings.

## NOTES ON VILLA AND SUBURBAN GARDENING.

### KITCHEN GARDEN.

THE fine weather recently experienced dried the ground sufficiently for sowing Onions, Parsnips, Peas, Turnips, early Carrots, Asparagus, Leeks, Parsley, and Spinach. Onions succeed on a well-manured firm soil, and may be sown in drills 10 or 12 inches apart and left thicker in the rows. Autumn-sown Onions ought also to have been transplanted. These are disposed in shallow drills 10 inches apart and 5 inches asunder in the rows. If large bulbs are required place the rows 12 inches apart. It is yet too early to sow the main crop of Carrots, but a few may be sown on a warm border. Give the preference to light unmanured soil; sow thinly in drills 10 inches apart, and between these sow a line of Radishes: either Early Horn or Nantes Horn Carrots are suitable; and good early Radishes are Wood's Frame and the French Breakfast. A mixture of equal parts of soot, lime, and wood ashes thinly distributed over the surface of the soil and lightly stirred in prior to sowing will prove beneficial, and a good preventive of the maggot so destructive to Onions and Carrots. Where the maggot has proved very injurious a small quantity of wood ashes should be sown in the drills with the seed. Ground deeply dug and manured with lime only is most suitable for Parsnips; the seed may yet be sown in rows from 15 to 18 inches apart. Early Turnips are best obtained on an east border. The soil should be made firm and not be very poor. Sow thinly in lines 15 inches apart. Asparagus may be sown in drills 12 or 15 inches apart, and the seedlings can be transplanted in the next or following season. A pinch of Leek seed to be sown thinly broadcast or in shallow drills in order to obtain plants for putting out later on. Parsley may be sown in any narrow border, but is much finer if given an open position and the plants freely thinned out.

Peas reared in boxes under glass should be transplanted before becoming drawn. If sown in fine soil and evenly over the boxes, shake the roots clear of the soil, having first cut out deep narrow drills with a spade, and lay them in to their full depth. Those sown in turves or pots to be transplanted as raised. The rows of Peas to be from 30 inches to 1 yard apart, and when first put out should be lightly protected. Nearly dead Spruce Fir boughs are most suitable, as these need not be removed when the stakes are put in. If not already in no time should be lost before making a good sowing of early Peas. As soon as the earliest sown are pushing through the surface sow more of William I. or other good early variety in the open ground, and at the same time a row of a good second early variety, such as Alpha, Hair's Dwarf Mammoth, Nelson's Vanguard, and Laxton's Supreme—medium height varieties—to be staked or otherwise. Taller varieties suitable for this sowing are Culverwell's Telegraph, Carters' Telephone, and Huntingdonian. Spinach to be sown between the rows. A mixture of soot and lime dusted over the young growth of Peas will tend to keep off the birds.

Autumn-sown Lettuces wintered in frames if well hardened off may be transplanted to a warm border. Manure the ground freely and give the plants good room. The rows of Cabbage varieties to be 9 inches apart and 6 inches asunder in the rows, and the Cos varieties 1 foot apart and 9 inches asunder in the rows. Sow more seed of Paris White Cos, or varieties of the same on a warm border, and a pinch of the All-the-Year-Round Cabbage Lettuce. Seed of Dwarf Erfurt Mammoth or other early variety of Cauliflower, Veitch's Autumn Giant Cauliflower, Brussels Sprouts, Cabbage if required during the summer, Early Ulm and Little Pixie Savoy if required early, may be sown thinly on a sheltered border.

Early Potatoes may be planted at the foot of a warm wall or on a sheltered border. A light sandy soil is best for this crop, and when planting rub off all side shoots and carefully draw the earth so as to preserve the central sprout. Do not hurry in the planting of principal crops, preferring rather to have the sets in good condition and the ground in good working order.

### HOTBEDS.

It is not too late to form what has been before termed a "spring

bed." This may consist of leaves and stable manure previously prepared, or leaves previously used for forcing. Seakale or Rhubarb, to which is added a little somewhat fresh stable manure. The bed may be about 3 feet in depth and of any width, and be made firm. About 6 inches of fine sandy or light soil to be placed on the surface, this to be kept in position by narrow boards, the latter being fixed by tall stakes, which also support the fish netting and other protecting material it may be found necessary to use. One corner may be used for repeated sowings of Mustard and Cress, and in another may be sown a pinch of Celery for the earliest crop. Seed of an early Carrot might be sown thinly over the remainder of the bed, and with this may be sown patches of early Radishes, Cauliflowers, Brussels Sprouts, Lettuces, and even Asters and Stocks. Thin sowing must be strictly practised, and each kind should be removed, to be pricked out or otherwise before they overgrow their neighbours. The Carrots will eventually have sole possession of the bed, and these alone will well repay for the outlay and trouble taken. By sowing on a "spring bed" seed is economised, and crops are obtained much earlier than if sown on an ordinary sheltered border.

### GREENHOUSES.

*Ferns.*—Many kinds of these, notably the Adiantums or Maiden-hair Ferns, are commencing growth and may be repotted. When in this stage of growth the balls of soil may be reduced considerably with the help of a sharp-pointed stake, the roots lightly trimmed, and be repotted into a pot of the same size as that previously used, or somewhat larger. They may now be safely divided if more plants are wanted, using for this purpose a plunging fork in preference to cutting through with a knife or spade. Use pots as small as possible, and do not supply water for a week at the least. Adiantum formosum should not be disturbed at the roots unless dividing is resorted to in order to increase the stock. The varieties of Pteris, Blechnums, Aspleniums, Nephrolepis, and others may all be slightly reduced and repotted. Any that are sickly should have the greater part of the old soil removed from the roots, trimming these with a knife and returning to as small pots as can conveniently be used. Soil suitable for all the foregoing may consist of equal parts of turfy loam and peat, with a liberal addition of sharp sand and charcoal. If either the loam or peat are bad use less of these; a quantity of leaf soil and broken potsherds may be substituted for the charcoal. All pots to be cleaned and well drained; covering the crocks with moss, and over this a layer of the roughest soil. When the plants are repotted place them in a warm part of the house out of draughts, shade from bright sunshine, and supply water carefully.

## THE BEE-KEEPER.

### A RETROSPECT.

NOTWITHSTANDING the many unfavourable seasons for bees during the last ten years, two of which were very destructive of bee-life, killing, I daresay, eight-tenths of the swarms in the midland and northern counties of England, great advancement has been made in apian science and practice. Prior to 1870 little progress had been made in England for forty years. Things are different now: knowledge is spreading fast; gifted teachers and successful apiarians are at work, and doing much good by their lessons and example. What is most wanted is a good season or two for honey-gathering throughout all the counties of England. It would be painful to mention the disappointments and losses of many people, both young and old, who have made unsuccessful attempts to begin bee-keeping within the last few years. Baffled by unfavourable seasons, failure has been the result in the case of many hopeful beginners. The straw hive, the bar-frame, and the Stewarton have all been tried and found wanting. The weather, more than anything else, has caused the depression and failures. Some years ago a clergyman from Scotland, being in this locality, called to have a chat about bees. He had made a commencement two years previously, and had not then a spoonful of honey. Since that time the Scottish bee-keepers have had three good seasons for honey, and probably the clergyman's ill luck at first is now forgotten in the encouraging success of after years. While lamenting the disappointments and collapses of many in their first

attempts in bee-keeping, and while battling ourselves against adverse winds and seasons, I have never lost hope that good times will come to the apiarians of England. It is well for people who are doing what they can to surmount the difficulties of life to remember the sentiment and kindly advice of two well-known mottoes, "Nil desperandum," and "Wait a wee, and dinna weary." Thomas Carlyle once said, in speaking of hope, that "from the lowest depths there is a path to the loftiest heights." And some other writer says, "Hope is a vigorous principle, animating man to do his utmost; and thus by perpetually pushing and assurance it puts difficulty out of countenance, and makes seeming impossibilities give way."

During the last ten years the moveable-comb hive has received great attention. Enlargements have been made, and it has been found that protection from cold in winter is necessary, or at least beneficial. Hence frame hives with cavity walls are now used and recommended by the advanced men of the bar-frame school, and which, doubtless, will gradually be adopted and used by all classes of this school. As improvements have been made in the moveable-comb hive, and as its mode of management is becoming better understood, there is good reason to expect that more satisfactory results will come from its use in the future than in the past. Amateurs of this school will in the good seasons be encouraged by success. It may be fairly stated that the machinery of bee-keeping to a large extent is now prepared for work, and awaits only the return of honey weather.

During the past twelve months nothing of special importance has transpired amongst apiarians of Great Britain, except the prodigious harvests of honey in Scotland. I can think of no discoveries that have been made in the habits of bees or in the practice of managing them. Much has been said about foul brood, and speculations have been rife as to its origin, character, spread, and cure. I think I have read all that has been written in English on this subject, and I have to confess that my opinion remains undisturbed and unchanged as to the incurability of this terrible disease—that nothing will save the bees of an infected hive but their removal from it. Last year a novel idea was mooted. A writer recommended his readers to use watery syrup in feeding bees, in order to prevent them from going out for water in inclement weather, and he told them if they do so the lives of many bees would be saved. If I remember rightly, from one to two pints of water is to be mixed or given to one pound of sugar. Now one pint of water to one pound of sugar is very good and acceptable food for bees at all seasons, and if used in quantity in inclement weather it would cause the bees to breed and send them abroad for water, the very thing the writer wants to prevent. Such haphazard opinions and recommendation are novel enough, and that is all that can be said in their favour.

Another idea is being mooted now—viz., that bees eat honey in order to keep themselves warm; that is to say, if I understand the theory rightly, that bees eat more honey in cold weather than they do in warm weather, and that this extra consumption of food is for the production of heat. I remember a shrewd expression of Mr. Moses Quinby—viz., that his bees acted differently from those of other people, meaning thereby that from his experience amongst bees he could not support or confirm statements made by other writers. If it is usual for bees to eat more honey in cold weather than they do in warm weather I have been misled by my bees for fifty years, for I have found that bees consume more honey in mild autumns and mild winters than they do in cold ones—nay, that the consumption increases with the heat of the hives or the warmth of the atmosphere around them, and that the consumption decreases with decreasing heat or warmth. By removing a hive from its outdoor quarters into a greenhouse during winter, I invariably find that the bees eat more honey than those out of doors. Strong hives or stocks consume about 15 lbs. of honey each from September to March in mild winters, whereas 10 lbs. will serve them in cold winters. Bees are nearly motionless in cold wintry weather, and in this condition they neither require nor use much food.

Once more let me return to the question of crude and perfect honey. "B. & W." was asked what kind of proof he wanted that bees convert honey crude into perfect honey. Instead of complying with this request, he now admits that there is a difference between crude and perfect honey, and tries to account for the change in another way. He says "that it seems to be the most easily accountable thing in the world. I am fully convinced that evaporation is the chief and perhaps the sole factor in the business, although it is, of course, possible that the bees may themselves reject much of the honey they have too hurriedly collected (not that we hold such an opinion) during the excitement of the period of glut, and there may be (probably there is) some chemical change perpetually going on, owing to the high temperature of the hive,

which affects the consistency of the honey and even its quality." This is the language of uncertainty, showing that the writer is in a thicket of doubts and cannot well disentangle himself. I respectfully submit that it would be better for "B. & W." to abstain from offering criticisms on the subject till he is able by fact and argument to support his theory. I am not going to argue the matter further, but simply say that if I live till the honey season arrives, I will before witnesses take a bottle of crude and a bottle of perfect honey from a hive, and request permission to forward the same to the British Bee-Keepers' Association for its decision as to whether crude honey can be converted into proper honey by evaporation. Will the evidence of eight or ten of the leading apiarians of Great Britain satisfy our friend?—A. PETTIGREW.

#### AMERICAN BEE JOURNAL.

THE "American Bee Journal" after a well-deserved successful run of twenty years passes into its seventeenth volume as a weekly, in which form several numbers have appeared. It occupies thus a unique position, which its acknowledged merit will, we hope and believe, enable it to sustain with increasing advantage to itself and the bee-keeping world generally. Several of its correspondents are men of marked ability, while its excellent editor, Mr. T. G. Newman, needs neither introduction nor commendation, since he was with us during a portion of last summer. Amongst a long list of subjects treated a few will be especially interesting, such as

#### FERTILISATION IN CONFINEMENT.

Professor Hasbrouck has experimented upon this matter as he says with success, his plan being in short this. He cuts a square opening into a sugar barrel, and into this fixes a sheet of glass, and then tubs the queen (she being of the right age), with a number of selected drones. They fly together under the glass and accouplement takes place. This experiment has been tried again and again in other apiaries with uniform failure, and not a few have supposed that anxiety to obtain a certain result has interfered with accuracy of observation. This interesting question which has so much to do with the production of a superior race of bees, besides, if we reach easy and tolerably uniform success in it, being an enormous assistance in requeening colonies, is exercising the minds of many progressive American apiculturists. Amongst these Mr. G. W. Demaree writes—

"In the month of August last I made what I called a fertilising cage, provided with a steep glass roof. Thus prepared, I watched for a virgin queen, and when she came out to take her bridal trip I captured her and placed her in the cage, which was set on top of the hive.

"First one drone and then another till a half dozen or more were put into the cage. The queen appeared to take her confinement quietly; inflated to the fullest extent she showed her beauty to the best advantage. If you would see a virgin queen in all her glory you must look at her when out on her heyday spree. The queen and drones flew lively in the cage, but the latter would do nothing but beat their cowardly heads against the glass roof, unconscious of the presence of the queen. After well-nigh baking myself in the hot sun I gave it up and returned the queen to her hive.

"*Second Experiment and Failure.*—The next day I proceeded to try the following experiment in hopes of throwing some light on the subject. I procured a long pole 16 feet long, to one end of which I nailed a strip of wood about 4 feet in length at right angles with the pole. Armed with a fine thread 4 or 5 feet long I watched for the queen, and when she came out I caught her, and by the aid of the deft fingers of Mrs. D., one end of the thread was made to span the delicate waist of her royal highness, the loop being provided with a knot to prevent it from cramping her waist—a performance, by the way, that required no little skill. Thus cabled, her wings and limbs were left free from incumbrance. The thread was now tied to the end of the transverse bar aforesaid, and the pole hoisted a few rods from the apiary. The queen performed nicely at the end of the thread. There were plenty of drones flying, and soon (I should think in two minutes' time) the air was black with drones circling about the fettered queen. Now and then one of them would give her chase, but when the thread would bring her to a sudden halt he would dart to one side and disappear. Several times a drone struck her with considerable force, but would bound away as though suddenly frightened. I watched the proceedings closely, till the queen became weary and the drones retired. The experiment proved a failure as to the fertilisation of the queen, which I attributed to the fact that the queen was somewhat injured by catching hold of a tuft of grass when the pole was being elevated.

"*What the Experiment Suggested.*—It is evident from what I saw in connection with this experiment that a great number of drones follow the queen when flirting through the air while out on her heyday spree, and perhaps the swiftest cavalier of them all overtakes and is accepted by her. Thus it would appear that Nature in this way selects the swiftest specimens of the race to propagate the species.



If this is not mere "theory," it goes very far to show why Nature has provided so many males in comparison with the number of developed females, and why the latter must take the risk of fertilisation in the open air.

"I gave much time last season to the study of this subject, and I find that a well-developed virgin queen plies her wings with lightning velocity, and flies with wonderful rapidity. Now, if she does not give chase to the drones, how are we to account for the fact that she usually makes three or more trips into the air when drones are plenty? I saw one beautiful slender little princess make sixteen trips before she was caught by a drone. When she returned for the last time, having been gone twenty-two minutes, she fell short of the entrance of the hive, like a worker bee overloaded with honey and pollen. Three days later she was laying.

"If Nature has determined that the 'race is to the swift' as pertains to the propagation of the honey bee, then perhaps Nature will forbid the interference of the wisdom of man in this matter—or, in other words, fertilisation in confinement will never be a success."—FRANK R. CHESHIRE, *Avenue House, Acton.*

(To be continued.)

### TRADE CATALOGUES RECEIVED.

Rawlings Brothers, Romford, Essex.—*Descriptive Catalogue of Dahlias.*

The Native Guano Company (Limited), Aylesbury, Bucks.—*Price List and Testimonials.*

Ewing & Company, Newmarket Road, Eaton, near Norwich.—*List of New Roses for 1881.*



\*\* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

**The Gooseberry Caterpillar** (*K. K.*).—We are obliged to you for your letter, which shall be inserted in a future issue, with the notes and figures to which you refer.

**Covering Stove Walls** (*F. R.*).—We insert your letter in order that our correspondent and others who have tried the plan described on the page quoted may reply: "I shall be glad to know whether the suggestions on page 227 of last week's Journal for covering walls in stoves will not have the drawback of making the wall damp, which, in the case of a lean-to against a house, would be injurious."

**Cinerarias** (*W. Wells, Redhill*).—The flowers are of great size, some of them being 3 inches in diameter, and the blue selfs are very clear and bright. As the plants are of dwarf habit with large foliage, they will be effective for conservatory decoration, but the florets are far too thin and pointed to be adjudged good from a florist's standard. If by crossing and selection you can obtain circular flowers of the same size of those before us, with stout overlapping florets, you will have a very fine strain.

**Yellow Roses** (*C. F. F.*).—The spray of No. 1 was not sufficient to show the character of the variety. We, however, submitted the blooms to Mr. D'Ombrian, who has grown the variety for many years, and he thinks both of the Roses are correctly named, "but Cloth of Gold is easily recognised. Its footstalks are much stouter than those of Maréchal Niel, and consequently the flower stands upright instead of drooping its head, and its foliage and habit are quite different."

**Grafting** (*W. B., Dorking*).—The examples you have sent are correct in principle, but we advise you to make the slices half as long again, and on the stocks a trifle deeper. Your knife must be very sharp, and the "cuts" true and smooth. If the scion is smaller than the stock the bark must meet on one side, when a union will be effected. You had tied them fully too tightly, still they must be made perfectly secure and immovable.

**American Plant Protector** (*H. S. Easty*).—We are not aware that it is sold in this country, but you may readily make some of any required size with light wood and tiffany that will answer your purpose. Tiffany protectors have long been in use in England, and in some nurseries have been extensively employed for sheltering plants from spring frosts. If the tiffany is dressed as follows it will be rendered waterproof, while the light will not be impeded. Take pale linseed oil 3 pints, sugar of lead 1 oz., and white rosin 4 oz.; grind the sugar of lead with a little of the oil, then add the rest and the rosin. Stir the whole well together in a large iron pot over a gentle fire. Tack the tiffany loosely on the frame, and apply the mixture while hot with a large brush.

**Planting Succulents** (*J. S. W.*).—It would not be safe to plant *Kleinias* now, nor yet *Echeverias*. Cannot you plant them temporarily near the shelter of a wall, and where you can afford protection against heavy rains and frost? The space they now occupy could then be utilised by other plants of a more tender nature. *Echeveria tabulaeformis* is not hardy, and must be wintered under glass, where it can be kept rather dry and safe from frost.

**Grapes Withering** (*R. Davies*).—You afford us no data whatever to enable us to suggest the cause of the bunches shrivelling. We shall require to know in what position the vines are in the house, and the temperature that has been maintained; also what you have, or have had, under the vines where the

bunches are affected, and any other particulars that will guide us in the matter. A bare statement of a fact is totally insufficient in a case of this kind, and the conditions under which the vines are grown cannot be too carefully detailed.

**Propagating Honeysuckles** (*Idem*).—Cuttings of wood when nearly ripe will strike if inserted in a shady border in the autumn and duly watered. With the aid of a handlight and sandy soil they strike more readily. The most successful mode, however, of propagating is by layers pegged in moist soil in the autumn when the leaves commence falling.

**Cereus flagelliformis Unhealthy** (*A. A.*).—No doubt the plant has been injured by frost. The pieces you sent are quite dead, but if the points of the shoots remaining on the plant are still alive cut them off and insert them as cuttings in a mixture of finely broken brick rubbish, sand, and a little loam. Place the pot in a warm position, and do not supply any water for a week or two, afterwards supplying it in very moderate quantities. When the young plants commence growing they may be potted in a light porous soil, and placed in a sunny portion of the house after they have recovered from the potting. If you desire to keep them in an unheated structure during the winter remove them some distance from the glass, giving no water during frost, and afford some protection—a piece of paper placed over the plant will be sufficient, except in very severe weather.

**Pereskias for Stocks** (*Puddle*).—Your plants are not strong enough for grafting; but if you grow them well this year, stopping them a foot above the point where you intend grafting, to increase their strength, they will be in good condition for your purpose next spring.

**Aloe variegata Unhealthy** (*Idem*).—The root action of your plant is defective; perhaps it has been overpotted, or possibly overwatered. A pot 4 inches in diameter will be large enough for such a plant as you describe, and suitable soil is turfy loam with a liberal admixture of charcoal and crushed bricks, a little lime rubbish not being objectionable. The pots must be efficiently drained, water being applied cautiously until the roots are active, then more copiously as the summer advances, decreasing the supply towards the autumn, and keeping the soil moderately dry throughout the winter.

**Culture of Erythrina Crista-galli** (*J. H.*).—The shoots of last year will have been cut back to the eyes at their base. Early in March the buds will begin to swell, when the plants should be turned out of the pots, and, removing all or most of the old soil, return them to the same size of pot, employing a compost of sandy fibrous loam and sandy peat in equal parts, and a third of leaf soil, old cow dung, and silver sand, affording good drainage. Place them in a house where there is moderate heat, as that of a vinery or pit, and they will soon start freely, and should have a position near the glass, free ventilation, and be freely syringed. After May they do best in a cold pit, kept rather close, and closed early, so as to have a good heat. If you could give the plants after potting the benefit of a hotbed for about three weeks, so as to have the roots active before the tops are excited, all the better. Shift the plants into larger pots as required, watering with weak liquid manure after the flowers show; or they may be planted in a warm position in the garden. It is called the Coral Plant, and the flowers are very beautiful.

**Globe Amaranth Culture** (*Idem*).—The seed should be sown in a compost of loam, peat, and sand, the pots being placed in a Cucumber frame or other structure where a night temperature of 65° is maintained. When the seedlings appear place the pots near the glass to keep the plants sturdy. As soon as large enough pot them, placing them either singly or in threes in 3-inch pots, keeping them near the glass in a warm house or frame. As soon as roots are seen protruding through the drainage shift into 5-inch pots, employing a richer compost, and grow them for a time under the same conditions as before. During summer they succeed well in pits or frames heated by sun heat alone provided care is exercised in ventilating and watering, and the frames are closed early in the afternoon with moisture. The dwarf variety when well grown is very attractive. You had better pot a few more plants than you require for flowering, as a portion of them may not grow satisfactorily, being rather prone to wither in a young state; the roots must not be seriously disturbed when potting is done.

**Paying Prize Money** (*J. R. S.*).—We know that some of the prize money of the Royal Botanic Society's shows held last year has been paid, and if any is due to you you had better write to the Secretary. The Peach you name has large flowers.

**Small Fruits** (*J. E.*).—We do not know a work such as you name. Our "Fruit Gardening for the Many," post free 4½d., contains practical information on the culture of small fruits. "Fruit-Growing," by Canou Lee, published at this office, post free 1s. 6d., is also worthy of your attention. We have received a new American work on small fruits that we shall review shortly. It contains much that is interesting on the history of the Strawberry and the different species.

**Belladonna and Guernsey Lilies not Flowering** (*James Carter and Co.*).—Without knowing when the bulbs were potted, and the mode of culture that was pursued, we are unable to state the reason of their not flowering. The bulbs of the Belladonna Lily are undoubtedly very fine, and those of the Guernsey Lily of full average size, and that they were sound is evident by their healthy roots and luxuriant foliage. Even under the best treatment there is always a number of bulbs more or less large that do not flower when forced, and starting them too quickly is a frequent source of failure. It is important, too, that they be potted as soon as possible after their arrival in England. The habit of delaying purchasing the bulbs until late in the season, and then placing them in heat to "make up for lost time," is a mistake, and usually ends in flowerless plants.

**Cocoa-nut Fibre Refuse** (*A. D., Isle of Man*).—We presume you did not read our last volume, or you would have seen the uses to which this substance is applied. If you turn to page 365, October 21st, 1880, and page 458, November 18th of the same year, you will find the subject fully treated. If you do not possess those numbers you can have them in return for 7d. in postage stamps sent to the publisher, with the request that he send you Nos. 17 and 21 of the new series.

**Rippingille's Propagating Frame** (*Idem*).—Rightly used we consider this a useful appliance. It should be placed in a greenhouse or other structure, a temperature of 65° to 75° being maintained in the frame for ordinary propagating purposes at this period of the year. Water must be kept in the tray, but "how often it should be replenished" depends entirely on the amount of heat that is afforded to effect its evaporation. The lamps should be trimmed daily. We think the vendors of the frame supply particulars for its management. A little ventilation will be needed, especially early in the morning, to permit the escape of superfluous moisture. If placed in a cold house the frame may advantageously be covered with a cloth at night if any difficulty is found in maintaining the requisite temperature with the aid of the lamp alone.



**Roses in Pots Dying** (W. R. R.).—By your request your letter was forwarded to Mr. William Taylor, who replies:—"The solution of your mystery is as follows: Gloire de Dijon is not a good forcer till the plants are considerably older than yours, and have made some quite hard wood which can be cut back like a Hybrid Perpetual. Alba Rosea likes heat, and its flowers will not come a good colour without it. Your Gloires would not have died with the low temperature, and your Alba Roseas probably would not have done so well. Even outdoors Gloire de Dijon does not like much heat; it does best on the north side of a building—at least, that is my experience in one of the southern counties. Young plants such as yours should not be allowed to become dry during winter; the most robust under such conditions would be the first to succumb."

**Pruning Gooseberries** (Ignoramus).—Early spring is a good time for pruning Gooseberry bushes, just as the buds are showing signs of swelling. We have, however, pruned them successfully in the autumn where small birds, such as bullfinches and sparrows, did not abound to peck out the buds. Where these birds are destructive spring pruning is the safest course to adopt. We have seen bushes pruned when they assumed a green tinge from the advancing growth, and no injury resulted. The mode of pruning depends greatly on the age and character of the bushes. If they have been neglected for some years severe pruning is not advisable, as the branches in the interior are destitute of spurs, but if the branches are furnished with fruit buds these must have light and air. Our "Fruit Gardening for the Many," post free 4d., contains instructions on the subject; but if you want more specific information, and will send us the particulars we have indicated pertaining to your trees, we will endeavour to supply it. Brief notes on pruning Gooseberries appeared on pages 53 and 75 of our issue of January the 20th and 27th of the present volume.

**Layering Roses** (Rus).—If we decipher your hurriedly written post-card correctly, you require information on the above subject. We extract the following from "Rivers' Rose Amateur's Guide." If any of our readers can detail a better mode of procedure we will readily publish it. "About the middle of July, in most seasons, the shoots will be found about 18 inches or 2 feet in length; from these, two-thirds of their length, the leaves should be cut off close to the shoot, beginning at the base, with a very sharp knife; the shoot must then be brought to the ground, so as to be able to judge in what place the hole must be made to receive it; this may be made large enough to hold a quarter of a peck of compost: in heavy and retentive soils this should be rotten dung and pit sand in equal quantities, well mixed. The shoot must then be 'tongued'—i.e. the knife introduced just below a bud, and brought upwards, so as to cut about half way through; this must be done at the side or back of the shoot (not by any means at the front or in the bend), so that the tongue does not close; to make this certain a small piece of glass or thin earthenware may be introduced to keep it open. Much nicety is required to have the tongue at the upper part of the shoot, so as not to be in the part which forms the bow, as it is of consequence that it should be within 2 inches of the surface, so as to feel the effects of the atmospheric heat; unless this is attended to the roots will not be emitted quickly; the tongued part must be placed in the centre of the compost, and a moderate-sized stone put on the surface of the ground to keep the layer in its place. The first week in November the layers must be taken from the parent plant, and either potted as required or planted out where they are to remain. Those shoots not long enough in July and August may be layered in October, when the layers are taken from the stools; and, if any are forgotten, February and March will be the most favourable months for the operation. As a general rule July is the most proper season."

**Young Gardeners** (W. Yates).—The subject was fully discussed in vol. xxxvi., and many letters from head and under gardeners were published highly creditable to both. In our experience, which is considerable, we have noticed that as a rule if an under gardener is diligent, attentive, and industrious, and discharges his duties with care and intelligence, being at the same time civil and obliging to all, he usually commands the respect of his superior, and is trusted by him when his trustworthiness has been proved. Head gardeners know the value of such men, and do not studiously make them uncomfortable. At the same time we know that some gardeners are "hard to please," and these are often the best teachers. Passing lightly over mistakes is not true kindness. We know some of the best gardeners of the day who in their probationary career considered themselves harshly treated, and felt at the time they were serving the hardest of taskmasters; but now they are thankful for the habits of punctuality and of attention to small details that were enforced, and which have proved of inestimable value; the men who were "hard" then are respected now. Those gardeners who are strict, firm, kind, and just are those who have been the means of training men who have proved among the best in their calling, and worthy representatives of the vocation in which they are engaged. Young gardeners, too, should avail themselves of all possible means of self-improvement. Not long ago the manager of one of the best gardens in England had not one young man out of the seven or eight "in the botly" who could draw a plan of the very simple flower garden that was wanted for a particular purpose. He felt a little humiliated when he had to make that confession, and most certainly he ought not to have had to discharge such a disagreeable duty.

**Names of Fruits** (J. D., Sussex).—1, Wheeler's Russet; 2, Edmund Jupp; 3, Not known.

**Names of Plants** (W. A.).—If you will send numbered specimens of the Ferns we shall be able to make a reply intelligible to you, but those we have received are not marked in any way. (Ebor).—1, *Asclepias curassavica*; 2, The small leaf, which was quite shrivelled, was unrecognisable. Sprays have been received from other correspondents that are quite insufficient for identification, some of them owing to having been sent in letters and crushed during transit through the post.

#### COVENT GARDEN MARKET.—MARCH 30.

THE last few sunny days have brought a good supply of Strawberries to our Market, and with short demand prices have given way considerably. Trade keeps quiet, good samples of late Grapes only being in request.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines..	dozen	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Oranges .....	100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen..	dozen	2 0 3 0
Filberts.....	1 lb.	0 0 0 0	dessert .....	dozen	4 0 8 0
Cobs.....	1 lb.	2 0 0 0	Pine Apples ..	1 lb.	1 0 2 0
Gooseberries ..	1 sieve	0 0 0 0	Strawberries ..	per lb.	8 0 12 0
Grapes .....	1 lb.	6 0 15 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	1 case	12 0 18 0	ditto .....	100	0 0 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ....	100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	1 sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage .....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Capsicums.....	100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers .....	dozen	0 0 3 6	Radishes....	doz. bunches	1 6 2 0
Celery .....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 6 1 0	Scorzoneria .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 8
Fennel.....	bunch	0 3 0 0	Shallots .....	1 lb.	0 3 0 0
Garlic .....	1 lb.	0 6 0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE UTILISATION OF WASTE LAND.

(Continued from page 243.)

WE now follow up our proposals for utilising waste land by referring to what may be done by converting it into woodlands and plantations for the production of timber and underwood. The land requiring to be turned to account by planting trees will be various, for we have to consider not only certain soils appertaining to mountainous and moorland districts, but also those previously used as arable land, but which has been reduced to a comparatively useless state. We will first consider mountainous land intermixed with moors and peat moss. This will require draining as far as the peat bogs are concerned; and if the land is covered with Heather, Ling, and Gorse it may all be advantageously pared and burned, because a large body of ashes will be secured, which will furnish all the manure required for the growth of trees if the land is properly cultivated by steam power to the depth of 18 inches. These remarks do not apply to land comparatively inaccessible in high altitudes, because not only the difficulty of using steam power will occur, but also the effect of climate will often render it inadvisable to plant in such exposed situations. Again, in the peat moor portions of such land after draining a question will arise as to whether the peat can be dug and sold, or turned to advantage by planting in an improved state by the mixture of soils, such as sand, gravel, or clay.

We will now give an illustration of what we have known to be done upon land of little worth in a hill district with a favourable climate for timber, such as is often found in various parts of the kingdom where the rainfall is frequently beyond the average. In the case to which we shall allude the land had been purchased at £15 per statute acre, and turned to profit by planting with Larch Firs and Ash, at 24 inches apart. The cost of trenching or cultivating by steam power was estimated to have cost on the average £12 per acre. The planting as estimated would be done as follows for 1 acre:—Fir plants, 8800; Ash plants, 1440; total being 10,240 plants, distributed thus:—First row all Larch, second row every alternate plant Ash, the cutting to commence at the end of the eighth year, and the whole to be cleared at the end of sixteen years. The cost of plants would be about £12 10s., planting at £5 10s., making a total, including hoeing at £1, the sum of £31, with interest charged on outlay at £4 per cent. for sixteen years = £20. In commencing cutting at the end of the eighth year the produce would be 1280 poles at 3d. each, which would realise £16. The ninth, tenth, eleventh, and twelfth years would yield, 3840 poles at 3d. each, the sum of £48; the thirteenth, fourteenth, fifteenth, and sixteenth years would produce, after allowing for

failures (eleven trees per rod, or 1760 trees per acre), for 1920 poles at 3*d.* each, the sum of £24. Thus the 7040 poles would realise £88 per acre, and the expenses being £51 per acre would leave a balance of £37, or a profit, as a yearly rental, of 43*s.* per acre, the Ash stools remaining to produce underwood in the future; and it is of consequence to understand that these calculations of conversion refer to land only worth a few shillings per acre for any purpose, including sporting rights.

We must now refer to poor, flat-lying, strong, and tenacious clay soils, of which there is much in certain districts run to waste, or which has never been properly sown for permanent pasture. Such land is as unprofitable as any land we are acquainted with. It is, however, a fact, that some such land upon chalk subsoil has been planted with Larch Firs, and these where properly planted we notice are growing fast and looking remarkably well, whereas the adjoining lands of a similar soil in grass are comparatively worthless. We, however, are far from admitting that many such plantations are examples to be followed with advantage. Sufficient care and judgment has not always been exercised in the planting, either as to the cultivation and preparation of the land, the manner of planting, the distance at which the plants were set, or the treatment while they were young, all of which are so essential to the successful growth of plantations. As to the efficient working of strong soils, if there is a turf on the surface, however poor it may be, it should be pared with the paring plough and burned; nor is it necessary to be very particular as to the regularity of cutting the turf, because it will furnish more ashes if a larger amount of earth than usual is burned, which will prove useful when worked into strong land, and will enable the roots of trees to penetrate the soil better. The ashes should be charred, because, when stifle-burned, they form good manure, whereas when burned into red ashes they only act mechanically by opening the soil and rendering it more easily pierced by the roots of plants. After the land has been pared and burned and the ashes spread the fallowing may commence, for under any circumstances, even if it is not pared and burned on the surface, a fallow must be prepared as a prelude to any planting operations; in fact, if the land is not intended to be pared and burned in the spring it should be deeply fallow-ploughed in the autumn and lie during the winter. It will prove all the better if the subsoiling implement is made to follow the ordinary ploughing, whether it is done by steam or animal power, because any surplus water or rainfall will the more easily sink away into the subsoil. When the first cross-ploughing takes place subsoiling should be done simultaneously, so that the whole of the subsoil should be moved at the same time as the fallowing of the surface is going on. During the whole summer no harrowing, rolling, or scarifying should be done until just before planting time; but the ploughing should be done when the weeds make their appearance, and thus the land will be kept as rough as possible during the fallow.

Where land lies perfectly flat it should be ploughed into small ridges about 8 or 10 feet wide, but if it is at all undulating or hilly the ridges may be 24 or 30 feet wide, with the land furrows struck out deeply, and made out in the same way after planting. We shall, however, refer to this matter again after the planting has been set out and done. When shaping the ridges for planting, especially when it is to be in small ridges, the ridge-ploughing should be done as deeply as four good horses can lay the land into shape; the land furrows between the ridges will then be correspondingly deep, in which case the furrows should lay the subsoil entirely bare, so that the surface water may pass away freely. The planting should be done as early as the young trees will bear removal, which will be generally about the last week in September or the first week in October. This is a matter of no small importance, because strong soils should be planted whilst the land is dry enough to move freely, for if the spade-planting is done when the land is

heavy and clogging the trees will not flourish so well, as it will go far to neutralise the benefit of summer fallowing, upon which a serious expenditure may have been made.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—This is the busiest of all times of the year except the harvest period, in consequence of the adverse weather extending all through February and into the first week in March; up to that time but little horse labour could be done with advantage on the tillage of the land by ploughing or otherwise. Fortunately we have experienced a favourable change in the weather, and the land has since worked well, being soft, moist, and fine on the surface, which is far better than when harsh winds have prevailed and suddenly dried the land. The small seeds, such as Clover and the grasses sown in Lent corn about this time, never vegetate with regularity when the land is rough and dry; these should be sown immediately after the ring roller, as the little grooves made by the rings of the roller form a good seed bed. Potato planting should be attended to now, for as soon as Barley sowing is concluded the late or second early Potatoes should be set, and after so much delay as there has been this year to save time is very important. In all those cases where the land was not dunged in the autumn or winter the application of guano instead of dung will much facilitate planting, as the application of the manure and the planting go on simultaneously. In the planting of the second early or late varieties of Potatoes we noticed last year in many cases where the haulm was very gross and luxuriant that it completely shut out the sunlight and drying winds so essential to the healthy growth of the crop, especially now this vegetable is so subject to disease. We therefore recommend in all farm cultivation where the land has been liberally manured that the lines of Potatoes should be 3 feet apart, in order that ploughing instead of scarifying may be done between them.

The sowing of Clover and grasses should if possible be done before finishing the work on the Lent corn, but we highly approve of sowing after Potatoes or roots fed off by sheep. It usually succeeds well in this rotation, particularly if the kinds of Clover are alternated, sowing one course with Broad Clover and Alsike, the next course with Dutch and Trefoil or Yellow Suckling. In some cases it is advisable to mix Giant Saintfoin with the Broad Clover if partial failure of plant is at all probable. We object strongly to sowing grasses with the Clovers, especially Italian Rye Grass, as it dominates and starves the Clover plant, particularly on the second cutting; it is, moreover, unfavourable for the succeeding Wheat crop. Of course if we are sowing grass for several years as old lea we must take three or four sorts of permanent grass, such as Timothy and Cocksfoot and Pacey's Perennial Rye Grass, in admixture with white Clover and Saintfoin, but without any Italian Rye Grass, as it is sure to make the old lea bare on the surface by its gross habit of growth as compared with other grasses. This Italian Rye Grass, however, has its place in the rotation, particularly on the stock farms upon the hills where no water meadows are available in the spring; it is then invaluable in a season like the present where a breeding flock is kept. Our plan is to sow it in the Wheat or Oats, and feed the grass in both the autumn and spring, and then plough and press for early Turnips, Thousand-headed Kale, or Rape.

*Hand Labour.*—Both men and women will now be fully employed in outdoor work, the men with Potato planting, preparing for Mangolds, Carrots, and early Swedish Turnips. The women should now go over the pastures and Clovers, taking up Docks and the earliest-rooted weeds with a small pick, but afterwards, in ordinary weeding of Thistles, &c., they must die if cut up with the spud or common weeding hook. The live stock on many farms are very short of the usual spring provision of roots, and where there is no large bulk of Mangolds for use great inroads must be made upon the hay Clovers by the feeding-off with sheep of large areas of the best and earliest grasses. There is one point to which we wish to call attention, it having been our practice for many years to sow a portion of stubble Turnips, and in consequence of a backward harvest, even as late as the first week in September, for if left without hoeing, and the bulbs very small, they will live through the severest winters; this year is an apt illustration. Therefore when they are allowed to run up to green in the spring they may be fed off by store or breeding flocks just before they come into flower, when it is valuable as a change from the water meadows or Italian Rye Grass for night folding. The land, however, should be clean, so that it may be drilled with Mangold seed afterwards. In this way we have grown fine crops of Mangolds, but not of Swedes or Turnips, for the bulbs of these we have found will decay, owing no doubt to the fact of the old roots and stems of the stubble Turnips having been ploughed under in a partially decayed state. Farm horses should still have Mangolds if possible as part of their daily allowance of food, and it should be continued until the earliest green fodder can be cut up for them. The horned ewes in those cases where their lambs have been sold fat should now be pushed forward with Mangolds and Bean meal, with a run upon the Italian Rye Grass. Where the lambs are kept for stock the meadows or Italian Grass will be sufficient, except in the case of lambs being held on for autumn grazing, they will then pay for decorticated cotton cake or cracked Beans. The early Down lambs for Easter markets should still have the best of food—cut

Swedes and Bean meal, with cake and cracked Peas always in the troughs. Where there is a provision of Thousand-headed Kale it is a valuable food for lambs to run forward to; still we prefer that fattening lambs should have no young sprouted greens of any sort if good sound roots can possibly be obtained. Teg sheep having been wintered with the view of being sold fat, now or after being shorn, should at this time receive Mangold and Bean meal if the Swedes are all consumed; for although there is an amount of danger from stoppage of urine whilst good wether sheep are eating Mangolds, yet the only alternative is grass food, such as water meadows or Italian Rye Grass, but in consuming either of these the change from root-feeding is so great that some losses must be expected from diarrhoea. The long-woolled flocks in the midland and northern counties are now in the midst of lambing, and in nearly all the districts where the pastures are early grass will be forthcoming when required; the other alternatives are Mangolds and Italian Rye Grass, but to provide these they must have been seeded by anticipation last year. Weaning calves will now require attention, and excellent calf food is sold by Messrs. Simpson, Bowick & Co., Thorley, and others.

### VARIETIES.

GRASS FOR PERMANENT PASTURES.—Messrs. Carters' manual on laying down land to grass (published by Messrs. Sampson, Low, and Co.), contains much information of interest to landed proprietors and agriculturists. The whole routine of preparation for sowing, management of the land and crops, manuring, &c., is concisely detailed. An interesting chapter on the geological formation of soils is provided, and descriptive lists of the various grasses and other useful fodder plants submitted.

— FANCY PIGEONS, by J. C. Lyell (*Bazaar Office*).—We have here a useful addition to Pigeon literature. Mr. Lyell gives a very complete list of all the works upon the subject which have been published. He deals largely with the Toy varieties, and fully describes some of the less known foreign sorts. The illustrations are numerous and well executed.

— AMERICAN CHEESE.—We cite the following from a daily paper:—We have long ceased to know what butter is made of, and now, it seems, equal uncertainty is to prevail with regard to cheese. People who eat American cheeses should be careful where they buy them, for twenty-one factories are at work in St. Lawrence, County Albany, U.S.A., making cheese out of lard. The gentleman's name who has invented this new delicacy is Crapser, and he is an Assemblyman of the Albany Committee of Public Health. Mr. Crapser makes no secret of his process of manufacture. The new cheese is made from sweet milk, from which cream has been removed at 40° Fahr., after standing twelve hours. No chemicals are used in this process, except some colouring matter. Mr. Crapser regrets that he has to work on the sly, but "the honest farmer would not take any advantage;" he gets along with them by paying more for their milk than it is worth. Seven of his factories are now making the lard cheese, which goes to Chicago, Boston, New York, and Baltimore; and 2500 boxes, each weighing 60 lbs., were made last year.

— THE CROPS IN ITALY IN 1880.—The following official statistics of grain and Potato crops in the year 1880 have just been published, and are as follows:—Rye and Barley, cultivated area, 1,193,577 acres; total production, 19,356,735 bushels—average per acre, 16.21. Oats, cultivated area, 949,832 acres; total production, 19,039,527 bushels—average per acre, 20.03. Wheat, cultivated area, 11,721,345 acres; total production, 148,645,753 bushels—average per acre, 12.28. Maize, cultivated area, 4,301,125 acres; total production, 89,448,293 bushels—average per acre, 20.80. Rice cultivated area, 380,727 acres; total production, 27,274,288 bushels—average per acre, 47.82. Potatoes, cultivated area, 171,255 acres; total production, 7,043,622 cwts.—average per acre, 41.12 cwts.

— BRITISH AGRICULTURE IN 1880.—Mr. Henry F. Moore has issued a manual on this subject, being a first contribution to an annual history of agriculture. It is principally a reprint of articles that had been contributed by the author to some influential newspapers, and contains instructive tabular records of the agriculture of the year. The following extract will show the character of the work:—"On an average of fourteen years the value of the Wheat crop to the farmer when the seed has been deducted is £7 4s. 11d. per acre; for the first five years, 1866 to 1870, it was £8 7s. 10d.; for the last nine

years, £6 12s. 2d.; and for the last five years—namely, 1875 to 1879, only £5 18s. 3d. per acre. The diminution between the first five and the last five years has been £2 19s. 7d. per acre, or a loss of nearly 37 per cent. Should present prices rule during the current harvest year an average of 40s. per quarter will bring the general average value of the Wheat crop of 1880 to not more than about £5 10s. per acre to the farmer. Fall in price as well as decrease in yield has conduced to reduction of the area latterly cultivated. The imperial corn average, or price in the selected markets employed for fixing the tithe rent-charge, averaged 53s. for fourteen harvests. It was 55s. 7d. for the first five harvests—namely, 1866 to 1870; it was 51s. 6½d. for the last nine harvests—namely, 1871 to 1879; and it sank to 48s. 9½d. for the last five years ending with 1879. Should the present Wheat crop have to be sold, as appears most likely, at no more than about 40s. per quarter, the average price for the last three years will be 42s. 10d., or 10s. a quarter below the average of the last fourteen years. According to no calculation of agricultural experts has it ever been shown how this cereal can be grown with profit in ordinary farm practice to realise only £5 10s. up to £6 per acre for the grain, unless rents and labour cost and public charges are materially modified. Yet, hitherto no one has demonstrated how the crop can be altogether banished from future rotations, or what necessary straw crop may be substituted for Wheat with a clear prospect of being remunerative in a majority of seasons."



### CHICKENS AND COOPS.

THE subject is a trite one; every novice in poultry-keeping delights to give his or her particular instructions for the management of chickens, and every poultry book has an elaborate chapter on the same subject. Indeed, it has often struck us that carefully to follow the rules of some of them would make poultry-keeping a somewhat irksome toil rather than a pleasurable recreation. Every year there are among our readers—at least, we hope so—novices who may be glad of a few simple and practical hints derived from the experience of an old hand. We will try to avoid all elaboration of detail, and to make them as plain as possible.

When the earlier chickens of a brood have been hatched from twenty-four to thirty hours they with the hen should be removed to a coop. It is not worth while keeping them waiting for any still unhatched after so long a time. If, however, there are eggs which show any signs of life in them, and there happens to be another hen on the point of hatching, they may be removed to her. If the mother appears ravenous she should first be placed by herself in the coop with plenty of food and water, and the chickens should be kept in the nest or a warm basket till she is satisfied. They should then be put down before her, and some light food, such as bread crumbs and yolk of hard-boiled egg, dropped before them; the hen, if a good one, will break it up temptingly before their eyes; they will eat what they want and creep under her breast. It is rare to find a hen wild and troublesome at such a crisis; if one should be so, leave her as much as possible to herself. She may step on a chicken or two, but if a fussy attendant rushes in horror at her she will probably trample upon all. Young chickens are much tougher than the inexperienced think, and when released from a wide foot often jump up as if nothing had happened. If, however, a hen is really a crusher of chickens she must be marked, and never again employed as a foster-mother.

The two all-important points now to secure the success of a brood are their housing and their food. We will here confine ourselves to the former, and reserve the latter for another article. Coops must be well made, watertight, with a good protection in front to keep out driving rains, and still well ventilated. It is pitiable to see the acts of cruelty which are often unconsciously perpetrated by the ignorant on wretched hens and chickens, which are exposed to every gust of a March wind in wicker coops. We have often expostulated with people who used such coops, and we have been told that many a brood is reared successfully at roadside cottages in such a way. This may possibly be true, but then the cottager runs out twenty times a day to look to them, turns them to catch every ray of the sun, protects them with an old sack from the wind, and at night probably takes them into the



cottage or to a snug corner in a thatched shed. Coops should be made of good inch boards, and those who cannot make and cannot afford to buy good coops have no business to rear chickens, unless they can give them the constant attention that the cottager henwife does. Coops for ordinary sized fowls should be at least 2 feet 6 inches wide, 2 feet deep from front to back, and 2 feet high in front, the roof sloping back to about 10 inches from the ground. Of course they must have detached fronts to shut up at night, but these must not entirely close them up. We always leave 3 inches at least at the top of their fronts open for ventilation, and this is protected by a wooden shelter in shape like the "bonnet" blind of a shop window when let down. We are convinced that far more chickens are killed by overheating and foul air in coops than by cold. Only those who have opened close coops in the morning can have an idea of the atmosphere which unfortunate chickens are constantly compelled to breathe.

Good coops being provided, it is of much importance where they are placed. No situation is so good as a shed facing south, and with a dusty dry floor. Sudden changes of wind will in such a place have little effect upon the chickens; they can run out in the sunshine, and retire from rain and snow. We always keep some of our own best poultry houses vacant for coops. The doors are always left open, save while the frost is on the grass or a snow storm is going on. Fresh soil and ashes are put down on the floor, and there we find the young birds thrive. Of course every one has not spare sheds; those who have not will find the best substitute for them in banks and hedges. In this country, where in spring our cold chiefly comes from biting wind, which is often accompanied by hot sun, only those who have tried it know the warmth to be found on the south side of a thick hedge or sloping bank. If this is so perceptible to human beings, much more must it be so to tiny chickens close to the ground, who are perfectly protected by the bank or hedge from all draught. It is often easy to throw up a bank of turves and so make a perfect place for a coop, or the protection of the roots of some old tree may be looked for. Such places are the natural resort for shelter of all the gallinaceous tribe.

Lastly, as to the flooring of coops. Where the soil is light and dry it is the best of all bottoms in a pulverised state. Where, however, it is sticky and heavy, sifted ashes will much improve it; if there is a little wood ash among the coal ash so much the better. Coops with wooden bottoms we never use, save for Bantams and delicate fancy Ducks. Neither of these races can bear the chill of the ground in cold wet weather, and must be lifted off it. Our own coops for them have wooden drawer floors, of which there are two to each coop; one is aired and dried whilst the other is in use. They are made by Messrs. Reynolds, and are called "The Shelter" coop. Of the more expensive coops we have never had any at all to equal them in ingenuity of make or practical utility. For such delicate birds it is an economy to have one or two really superior abodes. Of course the drawers when in use are covered with sand, light ashes, or soil to facilitate cleaning. Such has been our experience as to coops; we will give in another number that as to foods.—C.

### THE DORKING FOWL.

THE article on the above in a recent number of the Journal from the pen of so excellent a fancier and breeder as Mr. O. E. Cresswell is well worthy of the careful perusal and thoughtful consideration of those who take an interest in the Dorking fowl past and present. Like Mr. O. E. Cresswell I have been a poultry and Pigeon fancier from my boyhood. Forty-eight years ago I commenced the keeping of poultry with Bantams and white Aylesbury Ducks; from then till now I have continued a fancier more or less as regards keeping stock of my own. In the first edition of the "Poultry Book" some of the birds delineated were from my yard—notably the White Dorking cock, for I was a Dorking fancier in 1853 as now. He was a young bird when I painted from him, as may be seen by reference to his spurs, and his weight at that time was 10 lbs. all but 1 oz. The Silver-spangled Hamburgs were also from my birds. Although I seldom or ever exhibited, yet many of my stock took high honours even in America, especially my White Cochins, &c.; therefore I think Mr. O. E. Cresswell is scarcely within the mark when he writes somewhat slightly of those fanciers who from various causes do not exhibit.

The Dorking has during all the long years of my poultry fancy been one of the chief objects of my attention, and for many reasons, one being that several of my relatives being well-to-do farmers, Dorkings were the variety of fowl that I was most amongst, and from which as an artist I made many studies long before the poultry shows came into vogue. I also made studies from the

Dorkings at the Zoological Society's Gardens, and from almost the first at Birmingham I have attended professionally as well as a fancier until the last year or so.

In 1853 and thereabouts I saw the stocks of many of the best Dorking fanciers—Admiral (then Captain) Hornby's, the splendid birds of Mr. Fisher Hobbs, Captain Fairlie, and many others. I therefore feel that I am somewhat competent to give an opinion on the Dorking; the more so, as I not only saw the birds of the period I mention, but made notes and sketches of them. What I write is from personal observation, and not from books or periodicals, &c., like others in many instances are doing. Mr. O. E. Cresswell's paper I think, old and good fancier as he is, is worth therefore, as I have said before, grave consideration. I shall divide the subject into the same number of heads that he has, and proceed to give my unbiassed opinion.

*Form and Size.*—As regards form I do not consider the present Dorkings equal to those of some thirty years back. They are longer on the leg and not so wide. In the old Dorking the keel of the breast bone was sunk in, and the flesh rounded up from it like that of a fat Partridge; and to my mind such formation, only much enlarged, could not be surpassed for a table fowl. In the present Dorking the keel of the breast bone stands up, and the flesh slopes from it. Again, the birds are not nearly so narrow in the pelvis as the old, thereby carrying more offal and clearly showing crosses. Mr. O. E. Cresswell is somewhat wrong, though possibly right in the main, when he says that the Dorkings used to be judged from weight more than now. I think this must not be taken as representing fact at Birmingham, for I well remember going round the show some years ago with the best of all judges of the Dorking—Mr. John Baily, and I remarked to him that the first-prize bird was less than several others, when he said, "A Dorking was a fowl that was not judged from mere size and weight, but more for its quality;" and with this dictum I entirely concur. I am quite ready to admit that the modern Dorking is larger and more heavy, but much of the weight has been gained by the largeness of bone. There is much more offal in the modern Dorking. The constant aim of the old Dorking breeder was to get as much flesh as possible with as little bone. Again, how large ought a table fowl to be? The present fancy seems to be a rage for size, and everyone knows who knows anything of anatomy that the larger the frame the larger and coarser the tissues that form the muscles must necessarily become, for they do not increase in number according to the size of the bird; therefore, in large size we lose quality, and for no purpose. I had a fowl cooked a short time since that weighed 5½ lbs. when ready for the spit. This is small to what the modern Dorking fancier tries for, and yet I venture to say that no one, more especially a lady, would accept the liver wing if properly cut off on account of its size. It would be a good dinner for a man! Two fowls of 4 lbs. each when ready for the cook would be far preferable, and would I am sure be much more relished; and yet we are told there is an advance in the Dorking as a table fowl because it is 3 lbs. heavier than it used to be. Decidedly, in the opinion of very many it is not so good, and what goes partially to prove this is that there are several already trying to produce a good table fowl with less bone, finer meat, and less in size. This is a well-known fact, and one of our best judges—Mr. Tegetmeier—is among the number. Let the Dorking fanciers look to it. Some years ago that excellent judge of the Dorking, Mr. John Baily, told me that "the Dorking as a table fowl left nothing to be desired." It is long since I have seen Mr. Baily to converse with him on the subject, but I much doubt if he would say the same of the exhibition Dorking of the present time.

*Colour.*—I am by no means alone in much disliking the colour now called "fashionable." It makes a dark dingy-looking bird in comparison to the old bright browns and greys with the black tips to their feathers. Hereabouts we have thoroughly made up our minds not to have more of the sooty-looking birds. We will neither buy them nor their eggs for sitting. The colour was got by crossing and bred back to the cross, and is not the true Dorking colour; and we are determined not to have it forced upon us by a few breeders and judges backed up by some of the press. Some few years ago some breeders of the Spangled Hamburg fowls got some foolish judges to back them up with the idea that all the cock birds should have hens' tails, and for awhile—with the help of the press—they had their way, and made a good profit by it, until "common sense" would stand it no longer, and broke down the combination. It must now be so with the nearly black mixture so-called Dorking.

*Colour of the Feet.*—In all my long experience I never knew of dark legs in a Dorking till of late. We are told by the Dorking breeders themselves "it is a great blemish," and yet they will

increase alarmingly. People who buy eggs from prize yards have often nothing but dark-legged chickens; but we are quietly told they eat as well! Possibly, but as dead fowls we cannot sell them. The higgler will not take them of us as long as he can get a white-legged one anywhere; first-class poulterers will not have them at all, and yet we are told the Dorking is improved! It is no such thing. In the "Standard of Excellence" laid down by the Poultry Club the one particular defect as a disqualification, apart from deformities, was dark legs; but the modern Dorking is such a mongrel the dark feet cannot be got rid of. So no one who breeds for the markets will have anything to do with them. All eggs laid here are noted. Since I had the modern improved Dorking the number of eggs per fowl has much decreased.

**Colour of Ears.**—As long as I can remember the Dorking fowl it has had light-coloured ears, and to my mind the red ear is a clear evidence of cross, and I shall buy none with such. When I see light-coloured ears, rich bright-coloured fowls of good size and quality I feel myself safe in buying, but no more very dark birds for me, and, I may add, for others too; for hereabouts they are being disposed of—if I may use the expression—wholesale.—HARRISON WEIR.

I HAVE read with great interest the excellent and most impartial article by Mr. Cresswell on the relative merits of Dorkings of the past and present, and quite agree with him that the Dorking of the present day is both hardier and sounder in feet. Possibly the greater attention which is now paid to poultry may to some extent account for their being hardier; but my reason for believing they are sounder in feet than formerly is, that some fifteen years ago Dorkings of the highest quality were kept on the same farm where mine now are, and I well recollect how from time to time some of the best birds had to be killed owing to their feet being quite gone, while during the last five years I have only had to destroy one bird for this cause. Surely, then, if the modern Dorking is sounder in feet than formerly, it is a great point gained.

Mr. Cresswell, I am glad to observe, does not consider a pale ear a bad fault, as some, especially Scotch fanciers, do. There is no doubt red ears give a nice set-off or finish to a Dorking, but I would be sorry to see an otherwise good bird condemned for merely having a pale ear or a moderate amount of white in the tail. Dark spots on the leg Mr. Cresswell considers a great blemish, which should exclude both from the prize list and the breeding pen. May I ask, Does he consider spots on the leg worse than dark feet? I have seen a perfectly white-footed pullet show a dark spot or two on the leg. In my opinion nothing is more hereditary in stock, or more objectionable in the show pen, than a double nail or any malformation of the toes, such as a sixth toe.

So far from finding fault with the gentlemen who have judged the Dorkings at our leading shows during the two past seasons, I think they deserve our best thanks for having set their faces so resolutely against the leggy breastless specimens that used to win. There is just one point to which I should like to see a little more attention paid than sometimes happens, and that is to a neatly shaped fifth toe nicely turned upwards.

Much as I admire a hen or pullet of the so-called fashionable dark colour, showing the white shaft or watermark all down the back, I look upon colour as only a secondary matter, and during the last three years I have gained several prizes in good company with light-coloured birds of both sexes. One cockerel in particular, which won under two of our best judges both in the north and south of England, was little darker than a Silver-Grey, and mottled on the breast. Breeders of the old-fashioned Dorking need not, I think, fear to exhibit their light-coloured favourites under any of our recognised Dorking judges; provided they are good in size and shape with proper feet they are not likely to be passed unnoticed. If my memory does not deceive me, two of the prize pullets at the last Crystal Palace Show were decidedly light in colour, as was one of the winning cockerels at Birmingham.—M. F. SMYTH.

#### POULTRY CLUB.

A MEETING of the Committee was held at Charing Cross Hotel on Monday, 28th March. There were present Messrs. H. R. Dugmore (in the chair), T. W. Anns, R. A. Boissier, A. Comyns, S. Lucas, and L. C. C. R. Norris. The Secretary reported that he had issued a circular to the members requesting nominations to the vacancy on the Committee; that the only candidate duly nominated was the Rev. E. H. Morgan; that his nominators were Messrs. R. W. Brett, S. Lucas, and L. C. C. R. Norris; and that he was willing to serve upon the Committee. The Rev. E. H. Morgan was accordingly declared

duly elected. The following new members were elected—Mrs. Wilson, Watergate, Grantham, Lincolnshire; G. H. Maddison, the Rectory, Richards Castle, near Ludlow; and R. R. Godfrey, Watergate, Grantham.

A complaint from Mr. T. W. Anns that the three-guinea silver cup awarded to him at the late Eastbourne Show for the best pen of poultry in the Show had not been sent to him, was considered. Several applications had been made both by Mr. Anns and the Secretary of the Club to the Secretary and Treasurer of the Eastbourne Show without obtaining a settlement of the claim. It was resolved that in the event of the cup or its value not being received by Mr. Anns before the 14th of April, the Club should guarantee Mr. Anns the expenses of a County Court summons to recover the cup or its value from the Eastbourne Committee. It was also resolved that a copy of the above resolution should be sent by the Secretary of the Club to the Secretary and Treasurer of the Eastbourne Show.

A complaint from the Rev. E. H. Ricketts as to the management of the Bultth Show held in November last was considered. Mr. Ricketts stated that the owners of birds entered in the Selling classes were openly allowed to bid, and did actually bid for and buy-in birds in these classes, thus preventing their sale to *bond fide* purchasers, and that the Secretary had, in the case of four out of six pens knocked down to Mr. Ricketts at the auction at catalogue price, subsequently added 1s. to the price of each pen, on the ground that the catalogue price was the vendor's bid. A letter addressed by Mr. Cresswell to the Secretary of the Show had remained unanswered, and a subsequent letter sent on the 8th of March by Mr. Comyns, asking for an explanation, was also unacknowledged. The Committee resolved that the case was not one in which they thought it desirable now to undertake the responsibility of legal proceedings, but that they desired to record their strong condemnation of the practice of owners being permitted by poultry show committees to bid for and buy-in their own exhibits—a proceeding in itself illegal.

A draft circular to railway companies as to the rough handling of birds, &c. was approved, and directions for its issue given.

The preparation of a standard of excellence was discussed, and Messrs. Anns, Boissier, Comyns, Fraser, and Lucas were appointed as a sub-committee to consider the best method of collecting the necessary data for the preparation of the standard, and to report to the Committee thereon.—ALEX. COMYNS, *Hon. Sec. Poultry Club*, 47, Chancery Lane. March 29th, 1881.

#### OUR LETTER BOX.

**Leghorns and Minorcas (E. P.).**—We have had personal experience of the laying qualities both of Leghorns and Minorcas, and can recommend them. The Leghorns lay rather too small eggs to please some people. You will find classes for Leghorns at nearly all the leading shows, and classes for Minorcas at those in the south-west where they are most popular. We cannot recommend any particular exhibitor's stock.

**Oilcake for Cows (H. M.).**—Oilcake enriches the milk, but it does not increase the quantity. Brewers' grains, soft mashes, or similar food tends to increase the daily yield of milk, but it becomes very poor. We have for some years given about one cake per day to half a dozen or more of our cows that seemed to require it most, and we have not experienced any bad results from its use either in the flavour of the milk or otherwise. Perhaps there is nothing to which an unpleasant taste is imparted so easily as milk, and very possibly an over-supply of oilcake might have this effect; but we have found less cause to complain of this than anything else given to the cows to improve their yield of milk. Good linseed cake should be obtained.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. March.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	20	29.882	46.3	43.0	S.W.	44.0	53.8	38.5	77.4	34.4	0.028	
Mon.	21	29.711	43.3	39.0	W.	44.0	46.3	38.5	95.8	36.9	0.112	
Tues.	22	29.959	34.4	32.0	N.W.	42.3	45.6	29.4	84.2	25.4	0.018	
Wed.	23	29.916	40.6	37.6	S.E.	40.7	48.0	38.6	68.6	23.6	0.278	
Thurs.	24	29.326	46.1	42.6	N.W.	41.2	51.2	39.8	95.0	38.6	0.010	
Friday	25	29.419	40.0	35.4	N.W.	41.6	47.7	32.6	112.6	29.6	—	
Satur.	26	29.732	37.5	33.5	N.W.	41.4	44.4	29.4	95.1	25.3	—	
Means.		29.706	41.2	37.6		42.0	48.1	35.3	89.8	30.5	0.446	

#### REMARKS.

20th.—Overcast; slight rain after 4.30 P.M.  
 21st.—Early morning fine; snow shower 11 A.M.; darkness at 4.30 P.M.; very heavy shower of snow from 4.35 to 4.45 P.M.; fine evening.  
 22nd.—Snow showers during the morning; afternoon fine and bright.  
 23rd.—Fog in early morning; dull day; rain after 5 P.M.  
 24th.—Fine, bright, and cold.  
 25th.—Cold high wind; very bright sunshine.  
 26th.—Fine, bright, and cold; few flakes of snow at 4.45 P.M.

Temperature rather below the average; bright sun and cold wind.—G. J. SYMONS.



7th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
8th	F	Quekett Club at 8 P.M.
9th	S	Royal Botanic Society at 3.45 P.M.
10th	SUN	PALM SUNDAY.
11th	M	
12th	TU	Royal Horticultural Society—Fruit and Floral Committees at
13th	W	[11 A.M.]

### SPRING NOTES ON VINES.

**A**LL who possess Vines will now be considering what it is best to do with them to insure success in their culture. Experienced cultivators have fixed rules for growing Vines, and have no occasion to depart from them; but amateurs who may only lately have acquired a vineyard, and others whose previous practice may not have altogether pleased them, will no doubt readily accept any suggestions which are likely to help them.

Much valuable advice bearing on this matter has appeared in these pages of late years, but the great number of questions still answered weekly indicate that information on the subject is as eagerly sought as ever. Many of these no doubt come from new readers, and I daresay others who may have grown Vines for some years, often find difficulties arise on which they are glad of advice.

It is generally admitted that fruit trees have suffered much through the influences of the last three unfavourable seasons, and although many may think this can only be the case in the open air, I think it also applies to a certain extent under glass. The absence of sun is felt under glass as much as anywhere, and the ill effects of this deficiency of sun heat are very marked in the Vine. The chief value of the fruit, especially if it has to be kept long, is to have it thoroughly ripened, and the wood soon loses its fertility if only imperfectly matured for two or three seasons in succession. A long season of growth and early ripening of both fruit and wood in autumn are the best means of guarding against deterioration. August and September are generally our brightest months, and to have Vines growing instead of maturing at those periods is a great mistake. Early Vines that were started into growth in February or earlier will be safe so far as early ripening is concerned, but we must not forget the great number of vineries where the owners depend on their Vines being started into growth in a natural way as the days lengthen. In many such cases April will be nearly over before the Vines have commenced growing, and as five to six months are required to produce ripe Grapes, it will be seen that late starting is simply courting defeat.

To some it may appear extravagance to start Vines into growth in March or early April under the influence of fire heat, when by waiting a few weeks longer the expenditure would be greatly reduced. The latter practice is, however, not economical in the end, as it will probably lead to ill-ripened fruit and imperfectly matured wood in the autumn, the fire heat that is then wanted to finish the crop and afterwards prevent it from decaying far outweighing the expense

of a month's extra early firing in spring. Were the very latest Vines started into growth by the beginning of March, or as soon after that as possible, the Grapes would be thoroughly ripe by September, and the advantages of this system would soon be seen in the high colour and rich flavour of the fruit. The wood, too, would become ripener than it would do in the sunless months of October and November. The more delicate Grapes are, the better do they require to be ripened for late keeping; and it is only by starting Black Hamburgs at the time we have named, and having them ripe in September, that we can depend on them keeping until the new year or afterwards.

If all late Vines have not been started into growth, no time should now be lost in commencing. The inside border should be saturated with water, and when this is thoroughly done at the commencement of the season it will be long before the soil becomes very dry again. On the lower side of one of our manure heaps there is a large tank to catch all the liquid that runs from the dung. This tank often becomes filled during the winter, and to avoid losing any we generally empty the tank on to the Vine borders, and this has a good effect on the Vines when they commence growing. Liquid manure is better for Vines at the present time than pure water, as the size of the berries depends in a great measure upon the vigour of the young wood. In short, it is to the roots we must look for all our success in Grape culture. If these are in the finest possible condition atmospheric influences will be of secondary consideration, but imperfect root-action will never be compensated for by any attention to the stem growths. A balance between both, however, is what is most desired.

The growths must be trained and attended to from their first appearance. Those who leave long spurs in pruning will have many young shoots starting from each; only one, or not more than two, will be wanted of these. The weakest should be removed as soon as they are 1 inch long, leaving only two or three of the strongest for a time until it is seen which is most fruitful, and then remove the others. Crowding the rods and young growths is well known to be much against successful Vine culture, but the knowledge of this fact does not appear to deter many from adhering to the practice very closely, as in the majority of vineries we find, say, about a dozen of the side shoots on each rod bearing fruit, and double that number fruitless. To allow these all to bear would be overcropping, but to allow them all to remain on the Vine is as great an evil. What good they do it would be impossible to say, but the harm is easily seen. All Vines bear freely enough from the same spur for years in succession, so that fruitless wood need not be retained under the impression that from this will be secured the finest and only bunches the following season. If one-half of the fruitless shoots were removed an improvement would result in the wood and fruit remaining. To secure the best results from this practice the shoots should be removed before the bunches have flowered.

When Vines become old, although the roots may be in good order, the spurs run out far from the main stem, and sometimes both the bunches and berries are smaller than formerly. Young canes would alter this state of matters completely, and those having old Vines would do well to take up a few young canes from them annually. We do this regularly, and some of our oldest Vines have now clean healthy young canes, and that, too, without losing time or a crop, as the young rods reach the



top of the house in one season, and they are left the full length to fruit the following year. The lowest shoots on the old rods should be treated in this way, then the whole length of them is new. It is surprising what fine crops of fruit some young canes will produce. We have a cane now of Foster's Seedling which was taken up late last season for a little distance, and it is now showing a number of bunches as large and fine as the old rods. As these young canes do not throw out many side growths the first season, and are mostly confined to a single stem, their presence does not shade those on each side of them much.

The best Grape-growers admit a little air into their vineries night and day from now on to the end of the season. This keeps the atmosphere pure and is of much benefit to the Vines. In cold dull days ventilation should be very slight. Closing the ventilators early throughout the season will tend to secure quick maturity. Not a week should be allowed to pass without examining every growing Vine, removing all superfluous growths, and training the others in their proper places. Well-drained borders may have liberal waterings once a fortnight in proportion to the vigour of the growth and the state of the weather. A slight dusting of guano and potash thrown over the surface of the border before watering is beneficial. Mulehings of manure over heavy badly-drained borders do more harm than good, as such soil generally becomes sour and the roots perish.

Few are now in the habit of syringing their Vines so heavily as they did at one time; syringing, however, is good for Vines infested with any kind of insects, but except for this it has nothing to recommend it.—A KITCHEN GARDENER.

#### PRUNING MARÉCHAL NIEL ROSE—FLOWERS EXHAUSTIVE.

IN reply to "J. S., *Yorkshire*," (page 213), I may say that this Rose has not been easy to obtain from the trade upon its own roots for some years past. From some large Rose-growing firms it could only be obtained on the Manetti, and from others on the Briar or upon the Celine stock, and during the past few years the Briar has been used by the majority. "J. S." evidently entertains some doubts as to the condition of the Maréchal Niel Rose at Hooton Hall. I saw it in August last, when it was in exuberant health, as an excellent Rose-grower can testify who saw it at the same time. I still maintain, as before stated, that the cutting-back system is one of the wisest and most judicious that can be pursued. That the Maréchal will grow strongly at first is admitted by all, and make shoots at least 20 feet in length. These after flowering produce a number of side growths, while the main shoots are allowed to extend if wanted to cover a large space. Therefore the larger the space the greater the number of side growths, all of which produce flowers freely; and the more flowers produced the weaker the growth becomes, and the tendency increases to produce weak side growths, which flower freely, but after a number of years growth becomes checked. The plant then becomes constantly weaker, and eventually dies. When a large specimen shows this tendency under the strain of producing thousands of bloom, is it not wise to cut it hard back and add fresh vigour to the plant? or would "J. S." allow it to further exhaust itself and die, and then replace it with a young plant? From experience I am led to believe that one of the peculiarities of the Maréchal after growing on the extension system for a few years, is that it requires cutting hard back. This I believe will prolong the life of the plant considerably. I do not for a moment doubt that the Hooton Hall Rose if not cut back would continue to yield thousands of blooms for some time to come; but without it differs in the future from all others I have seen, it will commence in time to grow much weaker, and produce flowers inferior in colour and size, and doubtless in the end might die. This, then, leads me to ask, Why would it be a barbarous action to cut back the plant to the two shoots half way up the stem if a longer lease of its life can be obtained with certainty, and finer flowers than if left unpruned? "J. S." points to his much-pruned standards, but what would they have been if left unpruned? Perhaps dead, or at the least making weak wood, producing puny flowers, not to be compared with the flowers now produced when hard pruned.

If "J. S." will strike a number of Rose cuttings, or graft them and allow them from the first to carry the flowers they show, will the plants make as much progress as if the flowers were picked off? If not, I say a crop of flowers exhausts the plant.

Again, a number of plants are grown, say of Gloire de Dijon, to bloom in 10-inch pots, and a number of them flower well, the others not bearing nearly so many. The latter will make better growth the following year than the former and start earlier. Why is this?

Further, I have a number of young plants of the same variety from cuttings inserted last June, to grow under glass to be early ripened for early flowering in 1882. All were rested alike and started the same. Some were allowed to flower, from the others the flowers were removed as they appeared. The latter have started vigorously into growth, the others scarcely started at all. If the production of flowers in this case has not impeded growth, I must ask "J. S." what has? If no benefit is to be gained by removing the flowers, why are the nurserymen so anxious to remove all flowers from the quantities of Teas they annually raise until the plants are of a suitable size for sending out, also from the Hybrid Perpetuals that are lifted and potted in autumn to be sold the following year? If no better growth is to be obtained they would not spend the time and labour in removing the flowers.—WM. BARDNEY.

#### VEGETABLES FOR WINTER USE—WHICH ARE THE MOST SERVICEABLE?

I MUST preface the notes I send by stating that my remarks are not made to those who have a large staff of gardeners, but to many of your readers who, like myself, have a limited space and limited means.

First of all I think everybody will acknowledge that no crop for household use will give a larger return for the ground upon which it stands than Brussels Sprouts. I have tried the plants raised from seed sown in autumn, sown in early spring under a handlight, in March on a hotbed, and in the open later on, and believe from my experiments that sowing on a gentle warm (not hot) bed in March produced the most vigorous and productive plants.

Next to Brussels Sprouts in utility comes curled Borecole. I cannot say which is the best. That depends on the nature of the soil; but do not omit to grow the variegated Kale or Borecole. They are very hardy, very tender when cooked, and very beautiful when used as garnishing for dishes, being very useful for that purpose when other plants cannot be had. After Borecole and Kale come Savoy. In a general way they will stand a hard frost, and in fact they are more in season after a frost than before, but this winter has been too severe for even their hardy nature. Their weakest part appears to be just above the ground, for there the frost appears to have struck them.

I pass over Cabbages and Coleworts to Broccoli, these much-desired and required luxuries, for luxuries they are to most of us who have to raise them for our own use without artificial means—I mean without a hotbed, or frame, or handlight. Who can tell me of any variety which can be sown on the open soil, and will "come off" within a reasonable time for a succeeding crop? Let him tell your readers when to sow it, when to plant it out, and when will it be "due" to cut, for of all crops I have ever grown none have been so uncertain, so fickle in their early days, so liable to injury by frost and damp; and then if they live to "come to a head" some damp off, and many others sprout before the heads are fit for the kitchen, and there is no crop which occupies so large a space and for so long a period as Broccoli. Very few have stood the test of last winter about here, which is called a mild climate. All appear to have succumbed except one small batch of Wilcoves. Close by it a lot of Walcherens were killed, but the Wilcoves survived, and are looking well, owing, I think, to having been planted on poor land not over-manured.

Whatever may be at present the condition of your winter greens do not pull them up unless you are compelled to use the ground for other purposes, because from this time to June all your winter greens—Brussels Sprouts, Borecole, &c., will produce most delicate and delicious bloom shoots; cut them before the buds have developed into a bloom, persuade the cook to treat them as Asparagus, tie and boil them in a bundle as such, serve on toast with melted butter, and you may go on cutting the young shoots day by day quite as fast as you can use them, and they will be called for as fast as you can grow them.—G. O. S.

[We think our correspondent has confused Cauliflowers with Broccolis. The Walcheren cannot be properly compared with the hardy varieties of which the Wilcove is a type. The Walcheren is more of a Cauliflower than a Broccoli.—ED.]

ROSE REINE MARIE HENRIETTE.—This new Tea-scented Rose, raised by M. Levat and sent out in 1879, is a decided acquisition to a class of Roses that are general favourites. Two flowers of it

are on my desk as I write. They are full and globular, with abundant petals opening freely, bright rosy red on the upper side, and a peculiar greyish purple on the under side, which imparts a somewhat dull hue to the half-open blooms, charmingly relieved by the bright glowing tints of the reflexed edges. It has been described as a red Gloire de Dijon; and although it will not probably prove equal to our old favourite either in vigour of growth or size of flowers, it is likely to be much valued as a red-flowered climber—may I add as an exhibition Rose?—EDWARD LUCKHURST.

#### METEOROLOGY.

A HARD word to say, and not a very safe one to have to write, but it means merely in a general way a rain gauge and a maximum and minimum thermometer. Anyone with this stock in trade may begin to take an interest in the subject; and if he does, it is my experience he will soon take a great one.

It gives a charm to a rainy day it certainly never possessed before, to feel that every drop is telling upon the gauge and will come into account to-morrow at 9 A.M. Half an inch is delightful, an inch to have to measure very exciting, and I suppose, too, an event in an Englishman's life, and probably one he would not wish often repeated.

Also I think it makes cold more endurable to watch the fluid retreating before it towards the bulb; in fact one gentleman said, who had a limited thermometer, that the mercury went quite into the bulb, and he was most deeply thankful it was not able to go down any further. It is not altogether easy to take observations. The authorities very properly require most careful and extreme accuracy; and certainly the authority I know most about and quote oftenest is by no means easy to satisfy either in the quality of thermometer or rain gauge.

There are certain rules also to be observed as to position. But all this being overcome, I venture to predict great and increasing interest to be obtained in the taking of observations; and I think I may add thanks from our commander-in-chief Mr. Symons, who is always on the look-out for fresh stations, and who, I believe, now has several localities, important but unrepresented.—A. C.

#### ACHIMENES FOR LATE FLOWERING.

THAT Achimenes can be grown from cuttings most people know, but that it is the best way to grow these plants may be new to some. It is generally admitted that Dahlias propagated from cuttings of the young shoots without any portion of the old root produce the most satisfactory results, and if this is so with Dahlias why not with Achimenes? But as I have not proved it I will base my recommendation of cuttings on other grounds. Achimenes in summer are of comparatively little use here, the indoor requirements at that season not being so great as in the autumn, and there are generally plenty of plants in flower during summer without any special preparation; but in autumn, when shooting parties and early frosts come at the same time, there is apt to be a dearth of flowering plants unless ample provision has been made beforehand. It is then that the beautiful bright colours of the Achimenes are welcome, and there is nothing that I am aware of to prevent those who can grow these plants at all having them in as good condition during September and October as at any other time. That is one advantage which cuttings possess; but there is another and more important one to the busy gardener who has to grow a little of everything, and who not only has all his moments taken up, but all his indoor space filled till the frosts are gone, and he can venture to place some of his less tender productions out of doors—and it is this, that the roots need not be started into growth till the month of May, but the pots may be kept on a shelf high and dry, and then, instead of the ordinary tedious process of shaking the roots out and potting them, they may be started in their original pots by merely soaking them and keeping them in a moist situation. It will be seen that by this plan there is a saving of time at a very busy season, and of room when for every inch of space there are two or three candidates, each of which is half a foot in diameter.

I hope no one will take up your valuable space by telling us that this is not a new plan, because I am not interested in knowing whether it is new or old, old plans being just as good to me as new ones, and *vice versa*, provided they are good and economical. If I or anyone else invent any new thing which adds either to the pleasure or profit of a portion of our fellow creatures without hurting the rest we are doing good, and so I maintain we are while we are instructing the million in common everyday philosophy; but of course there are some of your readers who are more capable of instructing than of being instructed, and it is not for them we write excepting when we are obliged to remind

them that all are not clever alike, and that although one man may know all about a certain subject, or at least think he does, that is no proof that his next neighbour is not open to receive information. I am not writing this because I have any personal grievance, for most of your readers probably know by this time that I seldom waste your space on personal matters, most of my statements being well weighed before they are penned; and when I do not answer an adverse critic it is not because I am convinced of my error of judgment, or that I wish to treat anyone with contempt, but it is because I feel that I have made my statements in good faith. My opponent has probably done the same, and the public may be left to their own discretion as to whose lead they will follow, or they may pick up a hint all round and experiment for themselves, for it is quite possible that none of us are right in all details. But I feel very often that many of your more intelligent readers are prevented giving their experience simply because they are afraid someone will tell them that their plans and ideas are old-fashioned, and that they will be open to ridicule; but I can assure you that some of the pleasantest moments I have are in chatting with enthusiastic amateurs who have had no regular horticultural training, and that many a good original idea has been picked up from such men and women. I always find those who have a love of gardening talk freely with me. Why should they not be encouraged to take "our Journal" into their confidence? I hope, Mr. Editor, you will use your scissors freely when there is anything in MS. likely to deter a timid person from communicating his or her ideas, successes, or failures.

But I have forgotten where I left my Achimenes. They are just starting into growth in their store pots. They must merely be kept watered and shaded till they make growths, which can be put in as cuttings like Lobelias or Petunias, excepting that I place them in their flowering pots at once; but your readers will remember that I do not bargain for any cuttings missing, and those who cannot insure them all striking might perhaps do just as well by striking the cuttings altogether and potting them off afterwards before they become drawn. The plan here is to insert from five to a dozen in a 6 or 7-inch pot filled with light soil, and place them in a box covered with glass inside a hothouse or pit; they will soon strike root, when the glass of the box is gradually removed, and they are afterwards grown with Gesneras, Eucharises, and such plants as require warmth and shade, or they are sometimes grown in a frame from which early Potatoes have been taken, and where there is at first a little warmth from the fermenting material. The sorts grown are longiflora major, grandiflora, Bermundii, and a small scarlet which I think is called "Dazzle."—WM. TAYLOR, *Longleat*.

#### THE GRANGE, STRETFORD, MANCHESTER.

IN a recent visit to the gardens attached to the residence of John Heywood, Esq., at Manchester, I was greatly pleased with the healthy condition and floriferousness of the Orchids, which are grown in large numbers, under the care of Mr. Elphinstone, the able head gardener. In the warm Orchid house especially notable were some fine specimens of *Dendrobium nobile*, *D. Freemani*, *D. Devonianum*, and *D. densiflorum*, the three preceding flowering freely, and the last-named bearing a large number of buds. The useful *Oncidium sarcodes* was in excellent health, as were also *Cypripedium niveum*, the old and well-known *Phaius grandifolius*, and the beautiful *Ansellia africana*, which has been equal to or even surpassing some of the specimens of this distinct Orchid that have been recently noticed in the Journal. In the house devoted to Orchids requiring cool treatment were several large specimens of that useful species *Cœlogyne cristata*, indicating by their vigorous appearance the careful treatment they receive. *Disa grandiflora* is also grown very successfully, with *Odontoglossum gloriosum* and *Masdevallias ignea* and *amabilis*.

Roses in pots, too, form another important feature in this establishment and are similarly well grown, the foliage being strong and healthy and the buds showing remarkably freely, promising a fine display. Clematises in pots also receive considerable attention, and, as in all gardens where they are well treated, they amply repay the trouble expended upon them. In a very large vinery, where the Vines were advancing satisfactorily, was an uncommonly handsome specimen of *Rhododendron Gibsoni* covered with flower buds. All through the garden a very agreeable neatness was observable, and reflected credit upon the general management.—VISITOR.

DISBUDDING PEACH TREES.—I see it warmly commended in one of your contemporaries to commence disbudding Peaches at present. The practice of one of the most successful growers in

this locality is not to interfere with the trees until he can definitely ascertain what prospect he has of a good crop, and then to disbud and thin both foliage and fruit. This leaves the experienced grower a larger margin and wider direction in the distribution of what he is going finally to allow to remain, always excepting outward-growing shoots that cannot be utilised. Late thinning and disbudding is open to the objection that the tree is exhausted by so much as must finally be removed. Would some experienced grower state what practice he recommends, and why, for sash-covered wall Peaches?—W. J. M., *Clonmel*.

## THE EFFECTS OF ELECTRICITY ON VEGETATION.

(Continued from page 148.)

**MILDEW.**—It is the general belief that fungoid growths arise from minute spores or germs conveyed by and deposited from the atmosphere, wherein they are said to abound, and consequently to be ubiquitous—existing in everything and everywhere—ready at all times to spring into growth whenever and wherever the required condition needed for their development shall present itself. Whether this be the case or not there is no need for us now to inquire; but one point is certain—we have in the Fern case and the Cress seed experiment previously alluded to (p. 266, last vol.) an unquestionable explanation of what that condition is. The seed in contact with the positive electrode, being rendered electro-positive, was thereby made to absorb and combine with the oxygen constituting the negative “ion,” and thus forming an oxygenated carbon compound, for which there being no legitimate growth through the absence of a negative eliminating power, the cellular formation becomes differentiated into another character of non-eliminated growth—namely, the fungus mycelium. In the Fern case the confined air was also rendered negative instead of its normally positive condition, and the consequence was the whole atmosphere within became choked with fungoid growths accompanied by their peculiar Mushroom odour. Now the chief point to be remarked is this, that as soon as the atmosphere was restored to its normal electro-positive state the fungi speedily dried up and disappeared. From this fact we have indisputable proof that a negative atmosphere is an absolutely indispensable condition for the fructification of mildew and other fungi. It fully accords with all other known facts bearing on the subject, such as the exposure of mouldy articles to the air and the thorough ventilation of cellars, &c.; whilst sulphur and lime, absorbing the oxygen, arrest the action of mildew.

The part recognised as the Mushroom, being only an outcrop from the creeping mycelium, and requiring a special condition of the atmosphere for its development, and this being so different from the ordinary treatment required for flowering plants, it is not at all to be wondered at that, in the absence of any knowledge of what these conditions are, their cultivation should not be more uniformly successful. With regard to the atmosphere, the line of demarcation separating the electro-positive air from the negative surface of the earth is not at any particular fixed spot, but varies according to circumstances. It has been pointed out that plants in a dry state are almost non-conductors of electricity, but that they are made conductors by being filled with moisture. The same rule applies to both the air and the earth. If the surface of the soil be dry it carries the air-contact down to where it meets with a damper stratum. On the other hand, if the surface be saturated with moisture and the air be not in motion but stagnant, it extends the earth's negative electric state some way up into the air so as to have a zone of negative atmosphere immediately overlying the earth's surface. Now it is in this stratum of stagnant negative air that Mushrooms and other fungi luxuriate. We have an apt illustration of this fact in the readiness with which Mushrooms can be cultivated in damp cellars, and in the abundance annually produced in the caves of the quarries in the neighbourhood of Paris. To imitate these conditions is, then, the first point to be considered in their artificial production. To have a pit 1 or 2 feet at least below the level of the surface, and to have this enclosed so as to prevent too much disturbance of the atmosphere either by sun or wind; any ventilation to be high up, and preferably at the west or north-west side or corner. When growing abroad naturally in grass pastures, Mushrooms and other allied forms are mostly to be found in tufts of grass as high or higher than themselves, these preserving the damp negative atmosphere from being dispersed; but artificially this duty is performed by the layer of straw usually had recourse to; but it may be questioned whether some other more suitable material, either living or dead, could not be found. Then, again, it is not by any means improbable but that some foreign substance, such as decaying Oak roots, perhaps, or other material scattered on the surface of the bed might facilitate the production of the something like ganglionic

nuclei from which the fructification develops. These are both worth consideration and trial. In reference to liquid manuring, it is highly probable that those solutions which favour the production of mildew will be beneficial in keeping sufficient dampness in both soil and air. Almost all manures are remarkable for being diluquescent, or turning wet from exposure; and hence they owe a great part of their beneficial effects to the power of attracting moisture to the soil and air, and other part to their chemical changes exciting polar action. It should be kept in mind that a positive condition means dryness or a drying-up, whilst the negative state implies a uniform dampness or absence of drought. Thus, if Apples or Pears be kept in an attic or hayloft surrounded by a positive atmosphere, they will soon wither and shrivel up; whereas let them be placed on the floor of a shed or other position connected with the earth by conducting materials, and they will retain their plumpness to the last. The only possible drawback in this situation is their proneness to decay and mould, which now brings us to the next most important subject—namely, ventilation, which I will refer to in a future issue.—W. K. BRIDGMAN.

(To be continued.)

## CAMELLIAS AT WALTHAM CROSS.

DURING the past month Messrs. William Paul & Son have exhibited several large collections of Camellia blooms at Kensington, Regent's Park, and elsewhere, which have, as usual, attracted the attention and admiration of hundreds of visitors. Not only have the varieties represented been numerous and well selected, but the blooms have been generally of good size and excellent form, thus indicating the large extent of the collection and the care bestowed on their culture. The favourable opinion formed by inspecting the cut blooms exhibited is fully supported by a visit to the nursery where they are grown, for there plants of all ages and sizes from the latest “worked” batch to large and handsome specimens are found in the most satisfactory condition, vigorous growth, rich dark green foliage and abundant blooms producing a most pleasing display. One large span-roof house over 100 feet long is entirely devoted to specimens in pots, from which many thousands of blooms are cut in the course of the season; and yet about a week ago, so numerous were the flowers still open and expanding, that it seemed scarcely possible some of the plants could bear more. In several instances the branches were even bending under the weight of the massive blooms. More than two hundred varieties are grown, a number of course far exceeding those required in any private garden, but intending purchasers are thus afforded the opportunity of selecting varieties in accordance with their particular tastes, as all the best forms in commerce are represented. Several good lists of Camellias have been published at various times in this Journal, but for the advantage of the many new readers who have not seen those selections and have not the time to visit Mr. Paul's nursery I will briefly indicate the respective qualities of a few of the best varieties in flower on the day I was at Waltham Cross.

**WHITE.**—The old but exceedingly useful and beautiful *alba plena* is too well known to need description, and the same may be said of *jimbriata*; both are invaluable. *Ninfa Egeria*.—A handsome variety, with blooms of excellent shape, very full; petals of good substance, and pure white; foliage rich dark green, and habit of plant good. This deserves to be much more extensively grown than it is at present. *Compacta alba*.—Flower neat, symmetrical, of good substance, and pure white. *Montironi vera*.—Pure white; flowers large, full, and of excellent form. *Comtesse de Mastiana*.—A handsome symmetrical flower of good substance; white, occasionally tinted or flaked with rose.

**RED OR CRIMSON.**—*Reine des Fleurs*.—Flower of excellent form, full, and rich dark red in colour; a useful variety. *Bealii*.—Bright crimson, beautiful flower; very free, and one of the best in its class; late. *C. M. Hovey*.—Comparatively new; large flower, of good form and bright crimson, with somewhat of a scarlet tint. *Madame Lebois*.—Flower beautifully imbricate; fine light crimson, very free; an excellent variety. *Corallina*.—Colour deep coral red; flower moderately large. *Chandleri*.—Rich bright crimson; flower large, sometimes with few white blotches; very free in flowering. *Eximica*.—Flower of medium size and good shape; colour rich crimson.

**ROSE.**—*Marchioness of Exeter*.—Very handsome. Flower large, well formed; petals broad, bright rosy pink. *L'Avenir*.—A useful and pretty variety; flowers symmetrical, rosy pink. *Elegans*.—Flower full; petals neatly imbricated, bright rose. *Magnificent*.—Pink; flower large, petals broad and rounded, very profuse. *Livia Boromeo*.—Well-formed flower, rose, with a few white streaks. *Baron de Vrière*.—Peach colour; flower large, of good form, streaked with white.



**STRIPED.**—*Marie Theresa*.—Neat flower; petals broad and rounded, white striped with rosy crimson. *Rose de la Reine*.—Fine variety; petals rounded, of good substance, rose or crimson striped with white. *Beauty of Hornsey*.—Petals imbricated; flower symmetrical, rosy pink, with a faint white stripe. *Lavinia Maggi*.—White striped with crimson; flowers frequently very large and of excellent shape. *Countess of Derby*.—A beautiful variety, very free; flowers white, streaked or flaked with pink. *Belle d'Arglione*.—Petals thick; flower of good form, rose, with purple tinge and white stripes.

Other beautiful varieties are *Cup of Beauty*, bluish white; *Andrea Doria*, bright red; *Mrs. Abby Wilder*, white, lake stripe; *Prima Donna*, bluish white; *Countess of Derby*, white rose flake; and *Rafia*, dark crimson. There are many forms equally as good as some of those named, but the above would form a fairly representative collection.—S.

### USEFUL PLANTS.

*Urecolina aurea*.—The drooping clusters of yellow and green flowers produced by this plant are very pleasing in the winter months. After flowering the bulbs should be potted in a compost of loam and lime rubbish and placed in a light position, gradually diminishing the supply of water when decay is showing in the leaf, so as to ripen the bulbs for the next season.

*Torenia Fournierii*.—Among the few stove plants bearing blue flowers this is one of the best. It flowers so freely that the plants soon become exhausted, consequently propagating must be done three or four times in the year to maintain the stock of plants.

*Lachenalia tricolor*.—One of the best spring-flowering bulbs. They should be potted when about to start into growth, and be kept as near the glass as possible. A strong loam with a small portion of leaf soil I have found the most suitable compost. When well managed they will produce from six to ten spikes of red and yellow flowers in 5-inch pots.—A.

### CHAPTERS ON INSECTS FOR GARDENERS.—No. 20. NEW SERIES.

FROM the last family of the weevils, which includes the Scolytus and other species that infest wood, we proceed to our next group of beetles, very unlike the weevils in some respects, but resembling them in this circumstance, that the larvæ bore into and devour wood. General characteristics do not always suit every member of a group they are supposed to belong to, just as the natives of one district of Africa defined white men as "the wearers of tall hats;" yet all white men do not thus disfigure themselves. Thus, the next group of beetles is named the Longicorn division, from the length of the antennæ; but in a number of the species these adornments are not conspicuously long, though usually thread-like. Yet the Longicorns are easily recognised by persons who do not profess to be naturalists, owing to their large jaws, long legs, and long body broadening towards the extremity. These beetles from their habits are of special interest to those engaged in forestry, for throughout the earth we find their species are distributed, and the doings of British species give but a faint idea of their destructive powers in hot climates; still, several of them show themselves, or leave us the results of their operations, in our gardens and shrubberies as well as in the woodlands.

It is of necessity one of the peculiarities belonging to the history of most wood-boring larvæ, that neither the gardener nor the naturalist can discover how they work without cutting deeply into standing trees, which it is undesirable to do. One or two caterpillars that feed upon wood are said occasionally to migrate from tree to tree, but they are rarely caught in the act. The monstrous caterpillar of the Goat Moth does indeed diffuse fragrance (?) round, telling of its presence in trees; not so as a rule the larvæ of beetles, even where the perfect insect gives out an odour. When we have an opportunity of examining one of the Longicorn grubs, small or large, we notice that it is thin and flattened, with legs imperfectly developed; the movements of the creature depending entirely upon the muscles of the body and the head, the latter being covered with a horny substance that serves for a helmet. Having reached its full size the grub or larva must become a chrysalis, and were this embedded in the wood there it might die from inability to extricate itself: hence the larva usually finishes its career by working its way to a position where there is but a slight film between it and the open air. Some of these larvæ manifest a preference for decaying wood, and if only left alone time enough they certainly bring many trees to decay, though there are instances where the attacks seem to cause little harm. The death of some trees is hastened, subsequent to the operations of these and other wood-miners, by the exposure that ensues, as

cold and moisture penetrate into the heart of the tree. Empty burrows of beetle larvæ also become the resorts of various insects, molluscs, centipedes, and spiders.

*Prionus coronarius* is the largest British species of this division, and in size it approaches the conspicuous stag beetle, but it is less common. Though the eggs are usually deposited by the parents on or just within the bark, the larvæ bore deeply into the trees where they reside, and so they would be seriously hurtful in our woods if they were abundant; nor does it appear that they have a notable preference for any particular tree. The larval state lasts two or three years, and then a rather elaborate cell of chips of wood is constructed, in which the change to a chrysalis takes place. Towards the end of summer the beetles come out and repose during the day upon the trunks of trees. Owing to their dull brown hue they nearly resemble the bark on which they sit, and persons may be close to them without perceiving them.

A far better known species, and one more attractive in appearance, is the beetle called *Aromia moschata* (fig. 61), or the Musk beetle, from the scent it diffuses, which is not, however, at all like musk, and has been better compared to the perfume of the Sweet-briar. Once upon a time, and within my own recollection, the Musk beetle was to be occasionally taken upon the Willows that adorned some of those Surrey commons near London, that have either been built upon or otherwise spoilt by the growth of the metropolis. From the habit it has of making a shrill noise, not so unlike the squeak of a bat, exploring juveniles have given it the name of the Squeaker, warning other juveniles who are ignorant of insect peculiarities that it bites. It is pacific enough for all that, but

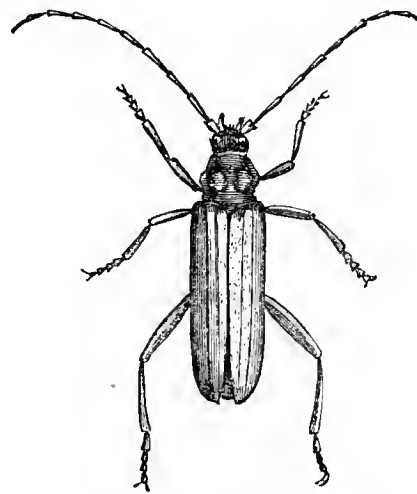


Fig. 61.—*Aromia moschata*.



Fig. 62.—Leg of ditto enlarged.

when a number of them are crawling upon a tree they will push each other about, and get their antennæ into a tangle difficult to unloosen. If an attempt is made to remove one of them from its hold, the insect grasps the bark firmly with its singularly spurred fore legs (fig. 62) until the hand is withdrawn, when it rapidly runs off. The Musk beetles are seldom seen in the act of flying. Few beetles of our own or of any land can rival the colouring of this species, the golden green of the wing-cases being chequered with beautiful tints of azure and purple. The burrows or tracks of the larvæ are of various sizes, and cross each other in all directions. The beetles seem to occur in companies, and they prefer those spots where rows of Willows occur near little streamlets. Though an infested tree will put forth leaves for years after it has been severely bored into, the end generally is that it falls or splits up in some heavy gale.

There are several lesser species allied to the preceding which have received names from the trees they attack. Thus the Aspen beetle (*Saperda populnea*), a brownish-black insect dotted with buff, is found upon Aspens, sometimes also upon Poplars; and the larva or grub bores into the shoots, producing enlargements here and there, and the shoots affected generally die. Many of these are fortunately killed by a parasitic fly, which pierces the branches with its egg-placer, and deposits its eggs upon or near the body of the unseen grub. *S. cylindrica* resorts to the Pear, the Plum, or the Hazel, in the branches or twigs of which its larvæ feed, pursuing the same mode as that of *S. populnea*. The only remedy appears to be that of removing and burning any shoots seen to be infected. Another of the Longicorns that proves troublesome in some places is the Wasp beetle (*Clytus arictis*), a long-legged fellow, black and yellow-banded, and which may be noticed during the summer dodging about amongst flowers, apparently with no definite object. Though it has received a designation from a sup-

posed resemblance to a much-disliked four-winged insect, a careful glance at it will at once reveal its nature. This insect does harm, not to the plants in the garden, but to the garden posts and palings, in which the larvæ feed by dozens, betraying themselves by the few grains of bitten wood that are perceivable in the exterior. Probably they seldom attack wood that is quite sound, though they hasten its ruin by their proceedings. One of them removed from its burrow appears as a whitish flattened grub and looks feeble, though the small head is furnished with muscular jaws which can pierce wooden fibre readily. The little beetle called *Gracilia pygmæa* is hardly a fourth of the size of the Wasp beetle, a slim insect, reddish brown, and also as larva a consumer of wood; but its taste varies, for the larvæ have been discovered boring their way into dry pieces of leather. One more species in this group must be mentioned, the strange insect called the Timberman (*Astinomus œdilis*), which is furnished with antennæ several times the length of the body, and hence readily broken. It is a Scotch species, seeking out Pines and Firs.—J. R. S. C.

### TEA ROSES.

MY remarks on this subject have led to many letters, and in your last number to the expression of somewhat contradictory opinions. My kind friend "A. C." welcomes the few remarks I made, while "A COMMITTEEMAN" censures me for alluding to anything that took place at a Committee meeting.

I am in hopes that if this latter considers the subject I was writing about he will not consider that I violated any confidence. We were discussing the schedule, and the subject of the number of Tea Roses required of nurserymen was much canvassed. I have always found that anything that has to do with Roses is a subject of much interest to your readers, and I have endeavoured by any legitimate means to place matter of interest before them; hence it happens that I have always given a short account of what has taken place at the meetings of the National Rose Society; but if this is not agreeable to any members of the Committee I will discontinue my practice, although I am not aware whether your correspondent is a member of this particular Committee.

With regard to my selection of Tea Roses, I wrote the article in question at my club, and I had not a catalogue to refer to, so had to trust my memory. I am much annoyed that I forgot to mention Marie Van Houtte, which is in my opinion one of the very finest Tea Roses. Madame Caroline Kuster ought certainly to be admitted into the list, but Comtesse de Nadaillac is such a poor grower that it is not worthy of a place in any but the largest collection. I fear the late severe winter and this bitter spring weather must have annihilated many tender Teas. We will hope, however, for the best; and as rosarians, however hampered by the weather, always seem to come to the front at some show or other, we may hope to see some grand Teas and Noisettes at the National Rose Society's Shows.—WYLD SAVAGE.

### THE CRYSTAL PALACE SCHOOL OF GARDENING.

PREPARATIONS have been made and rules and regulations provided for carrying out this project, which was one of the original educational purposes of the Crystal Palace. The school is to be in two divisions—1, Landscape Gardening: Chief Instructor, Mr. Edward Milner. 2, Practical Gardening and Floriculture: Chief Instructor, Mr. W. G. Head.

The project is an excellent one, and the curriculum is comprehensive, embracing, in the first division especially, every detail, scientific and practical, for the purpose of thorough and effective teaching. The Crystal Palace offers admirable facilities for the study and practice of landscape gardening in its various aspects, and the chief instructor has given abundant evidence of his skill as an accomplished landscape gardener. The course is of two years, and includes practical gardening and floriculture, and the fee is £110. Certificates are granted to competent students, and they will be aided to acquire professional work. This, however, is not a condition of studentship.

In the second division, Practical Gardening and Floriculture, the fees are less—£30 per annum; and wages are given—10s. per week the first year, 15s. the second, and £1 1s. the third year. The advantages are less too. We do not think that the present resources of the Crystal Palace are sufficient for the efficient training of young men for "professional gardeners or nurserymen;" and unless the Directors have made extensive additions since we inspected the working department of the establishment, or are prepared to make them, they will not, we think, succeed in their object. Lectures and theoretical instruction may be readily provided; but the "demonstrations on practical operations in horticulture" must, it appears to us, be unduly limited. The nursery

work of the Palace falls far short of that in private trade establishments. The propagation of a few genera of plants in great numbers and the preparing of plants for decorative purposes is very elementary practice in the vocation of either nurserymen or gardeners. It is not in this work that the latter fail, but in the regular supply of vegetables and fruits. This is the most important branch of gardening; and unless a young man acquires a thorough knowledge of the varieties and their characteristics in these sections, and has practical experience in forcing them when necessary, so as to ensure a supply of a given crop at a certain time—unless he learns by actual experience the time required to have each crop ready for use and the mode of producing it in its best condition, his knowledge on striking cuttings and potting plants will be of little avail. The Crystal Palace, so far as we are aware, offers no adequate facilities for this work, and there is no intimation in the prospectus that provision is to be made on a scale sufficiently large and varied to enable the teaching in this section to be of anything like equal value to that obtainable in hundreds of private gardens. When the Crystal Palace Company commenced growing plants for sale in a small way for visitors we thought that certain kinds of fruit, such as Grapes for instance, would have been equally acceptable to them and lucrative to the vendors. Possibly fruit culture is in anticipation, but we shall require to understand the particulars of it, and also those of the growing and forcing of vegetables, before we can regard the "school" of substantial value for those learning practical gardening. However competent an instructor may be, his teaching cannot be efficient without the means of demonstrating by actual practice the value of the lessons he must desire to impart; and these means, so far as we are acquainted with the establishment, the Crystal Palace Company have not yet provided.

Full particulars may be obtained on application to Mr. F. K. Shenton, Superintendent of the Crystal Palace School of Art, Science, and Literature.

### NOTES ON PANSIES.

PANSIES are now improving a little in cold frames after the winter and previous to being planted out. I sent a few plants away the other day, and could not help remarking what a difference the state of the cutting makes in the rooting capabilities of plants and their general healthiness. I prefer short healthy growths a couple of inches in length; but when our cuttings were taken the plants were dying in great numbers, and I could not exercise much choice with regard to their quality. The short cuttings were lifted with a network of roots and healthy growing tops, whilst the long strips were either not rooted at all or had a few short roots protruding at the end of the plant, the tops being more or less sickly. Last summer was a most unfortunate one in some gardens and nurseries. One large firm lost their entire stock of Show varieties. The Fancy varieties endure the sun and drought incomparably better, and are much superior for ordinary growers to the first-named section. The strongest we have were from Bath, but the majority of the sorts raised there do not open their lower petals here. Possibly the influence of climate may alone account for this failing. I ought also to state that this applies to Fancy varieties alone. The selfs succeed as well here as those raised in the north.

Doubtless the way to secure the finest blooms is to plant in a bed composed of fresh loam and manure; and it will be found that if the loam is somewhat heavy the blooms will be firmer in texture, the colours brighter and more clearly defined, than if grown in a lighter soil. I much prefer to have them in beds or borders in lines, with several flowers on each, than to have them in regular exhibition style. There is not much difference between the two systems if the soil has been well prepared and a mulching of decayed manure laid around the plants after being planted out. We set them out in lines a foot apart, and keep flowers picked off until the plants are well established, though these early blooms are as a rule very fine. In fine weather the plants make rapid progress, and it is necessary to allow a very restricted number of growths to remain if large blooms are desired. On the other hand, the larger plants will be much more showy where no prize blooms are wanted.

Pansies are easily raised from seed, which merely requires sowing on some light soil on a border. If in the summer time cover the bed with a mat until the seedlings appear, and when strong enough transplant them.

When the plants are somewhat exhausted in summer it is a good plan to pinch back the flowering growths and allow fresh ones to start, at the same time applying another mulch of manure to the surface of the soil. Cuttings may be taken at any season when growth is active. If kept cool and shaded they strike freely; in



fact, if selected from the base of the plants many of them will have roots when taken. Most of our cuttings are inserted at the beginning of September; they are dibbled into prepared beds in brick frames.—R. P. BROTHERSTON.

#### LYCASTE SKINNERI.

THIS very beautiful and useful Orchid is now well known and valued in most gardens where such plants are grown in moderate

numbers. The size, substance, and delicate colouring of the flowers render them very attractive, and a few good specimens are of considerable utility in any collection. An excellent example of what careful culture will effect with this Orchid is shown in the specimen represented in the engraving (fig. 63). This plant was grown by Mr. J. R. Stirling, gardener to H. H. Vivian, Esq., Park Wern, Swansea, and has had a dozen flowers open at one time, all from the single fine pseudo-bulb shown in the cut. Some of the flowers were  $7\frac{1}{2}$  inches in diameter, and



Fig. 63.—LYCASTE SKINNERI.

the pseudo-bulb itself was 5 inches long and  $6\frac{1}{2}$  inches in circumference. As such satisfactory results are not often obtained it may interest our readers to learn Mr. Stirling's mode of treatment, which he thus briefly describes.

"I find that *Lycaste Skinneri* succeeds well in a compost of good fibrous peat, chopped sphagnum, and charcoal or potsherds broken small, with a little silver sand added, never allowing the compost to become very dry during winter, and giving the plant very liberal supplies of water during the growing season, which is now commencing. We grow our plants in the coldest end of a succession Pine pit, a situation which seems to suit them admirably. I think too much cannot be said in favour of this lovely Orchid on account of its rich colouring, comparatively easy culture, and adaptability for decorative purposes. The plant in question has been flowering for the last month, and is

now placed in the house, where it will probably remain in bloom for a considerable time."

#### MARÉCHAL NIEL ROSE.

As you invite particulars respecting *Maréchal Niel Rose* it may interest you to know that I planted one in the greenhouse here between ten and eleven years ago, and under singularly unfavourable circumstances. The root is inside the house under a plant bench between a pipe and a brick wall, and so near to the former that I have put a slate packed with moss between to prevent the stem being scorched. No preparation was made, the soil being a clayey loam. The Rose is budded on a 2 feet 6 inches Briar stock. The longest growth is 30 feet. It is trained like a Vine up one rafter, and then spreads right and left at the top. It is in



vigorous health, and only has the weak old wood cut out. It has now about three hundred blooms on it in various stages. I cut the first about a fortnight ago, and I purpose sending you a sample Rose and foliage as soon as we have had a few more sunny days to colour the flowers well. I give liquid manure liberally to the Rose as soon as it commences growing.—THOMAS RENSHAW, *The Gardens, Ashbourne Hall.*

[The blooms are very beautiful, rich, and full; and the foliage is equally indicative of good health and culture.—ED.]

#### TRINITY COLLEGE BOTANIC GARDENS, DUBLIN.

SPRING flowers here are lovely. Hepaticas, Dog's-tooth Violets pink and white, *Iris reticulata*, *I. caucasica*, *I. Kolpakowskiana*, Violets of sorts, *Primula rosea*, *P. erosa*, *P. pulcherrima*, *P. abysinica* (verticillata), *P. acaulis* in variety, *P. Henryi*, and others. Narcissuses are strong; and some, as *N. minor*, *N. maximus*, and vars. of *N. Tazetta*, are very effective in the open air. Mr. Harpur Crewe's tiny *Bulbocodia* are charming in pots; and the rare double *N. Eystettensis*, figured by Parkinson 250 years ago, is fresh and lovely. One of the prettiest of all Primulas is *P. marginata*; and year-old seedlings of the tiny *P. scotica*, or Bird's-eye Primrose, are pushing up strong and fresh, as are also Dr. Regel's bulbs from Turkestan and the Caucasus. *Tulipa biflora* (white var.) is now pretty, so also are *T. triphylla* and *T. iliensis*. *Corydalis Ledebouriana* and the giant species of *Eremurus* are producing their great glaucous clusters of leaves. *Lilium giganteum* in a cold frame is a most effective fine-foliage plant; and the other Lilies—*L. auratum*, *L. Hansonii*, *L. Washingtonianum*, *L. speciosum*, *L. japonicum*, *L. longiflorum*, and *L. Kramerii*—are pushing up their great Asparagus-like shoots both in pots in cold frames and in open sunny borders. *L. testaceum* is stronger than last year, when it bore fifteen flowers on a stem 7 feet high.

There are two sides to Lily culture in the open air—sun *versus* shade. *L. auratum* and *longiflorum* and others on sunny borders are now growing, and I hope they may not be injured by those erratic frosts of April and even May. The same species planted at the same time in shady places are still below ground, and so may be better off eventually than their early neighbours.

*Ouvirandra fenestralis* is doing well in the Orchid house. It is now making leaves 10 inches long by 4 broad. It grows in a milk pan placed on two 4-inch hot-water pipes. The plant is potted in pure peat in a 4-inch pot, the water being thus kept clean and sweet around and below the plant by watering overhead with a fine-rosed waterpot. *Conferva* is kept away by dense shade, a mat being nailed permanently on the roof above the plant.—VISITOR.



IT is announced that the SOCIÉTÉ ROYALE DE FLORE DE BRUXELLES will hold the 103rd Horticultural Exhibition in that city on the 1st, 2nd, and 3rd of May of the present year. The schedule enumerates 118 classes in three divisions; about forty gold medals being offered ranging in value from 100 to 500 francs, and a large number of silver and gilt medals are also offered. Fourteen classes are devoted to new plants; fine-foliage plants such as Ferns, Dracenas, Palms, and Crotons are similarly well provided for; Orchids, miscellaneous flowering plants, and groups have also numerous classes devoted to them. One section is devoted to fruits, in which fourteen classes are named, for Apples, Pears, Pine Apples, Grapes, Strawberries, and general collections. As the period of the year is one at which the Belgian horticulturists can exhibit to the best advantage, a satisfactory Show may be confidently expected.

— A CORRESPONDENT thus describes the good old mode of FORCING KIDNEY BEANS IN BOXES—“These Beans are frequently grown in pots, being either sown in the pots and top-dressed as they advance, or are sown in small pots and shifted. At Longleat a simpler and a commendable practice is adopted. Boxes

about 9 inches wide and 12 inches deep and made of a portable length are employed, thereby saving much labour in watering. Labour is also economised by sowing the seed in the full depth of soil, no top-dressing being then required. Bean roots certainly do to a certain extent find their way up into rich top-dressing. At the same time the stems, as Mr. Taylor pointed out, emit no roots; and why not, then, give them the full depth of soil in the first instance? Top-dressing unless properly performed—that is to say, at the right time and with warmed soil, is apt to seriously check the growth of the Beans, and in other ways do more harm than good.”

— THE same writer observes—“The list of LATE-KEEPING GRAPES is small, and what few we have do not meet with general approval. Much of course depends on the culture given, especially with Gros Colman and Black Alicante. Both are more attractive in appearance than Lady Downe's, but oftentimes are far from equal to it in point of quality. Black Alicante as grown at Longleat is excellent, but neither this nor Lady Downe's can compare with Mrs. Pince for quality. Mr. Taylor is one of the few who has retained this variety, hoping that it may recover its constitution so much impaired by over-propagation, and it would seem he is perfectly correct in his anticipations. Its great fault is the extreme redness of the berries, and this has improved; so that if not actually black it will still be very acceptable at the table on account of its noble appearance, plumpness and solidity of berries, and very agreeable flavour.”

— THE second edition of the schedule of the MANCHESTER INTERNATIONAL EXHIBITION, to be held in August next, as already noted, contains, in addition to the classes there mentioned, one for the best collection of Apples, “three of a kind, in distinct kinds. The fruit to be grown north of a straight line drawn from Carnarvon through Chester and Lincoln to the German Ocean,” the prizes being £5 and £3, offered by Messrs. Paul and Son of the Old Nurseries, Cheshunt, the same firm also offering £2 for the best dish of autumn Strawberries. Messrs. Webb and Sons, Wordsley, Stourbridge, offer four prizes of the collective value of £6 16s. 6d. for six distinct kinds of vegetables.

— A CORRESPONDENT writing from Canterbury observes—“I have read with much pleasure the account of a lovely plant I have had for the last three or four years, the CHOROZEMA CORDATUM VAR. SPLENDENS, which is now blooming in my greenhouse. It is 8 feet high, and planted in the ground like a Vine; it covers 14 feet of glass, and almost reaches the top of the house. It commenced flowering at the beginning of February, and will continue for some weeks. It spreads out in many branches, the tips of each bearing flowers profusely like the specimen I send you. The temperature of the house does not exceed 50°.” The spray sent indicates that the plant is in vigorous health, the leaves being large and deep green, and the flowers also of good size and richly coloured.

— AT the recent sale of the first portion of Mr. DAY'S ORCHIDS the total amount realised was £1847 7s., which included the following sums for rare species and varieties, and unusually fine specimens:—*Aerides Fieldingii*, £11 11s.; *A. Lobbi*, fine specimen, £19 19s.; *A. Schroderi*, £31 10s.; *Angraecum Ellisii*, £11 6s.; *Calanthe Textori*, very rare, £10 10s.; *Cattleya Bluntii*, said to be the only two plants in the country, £17 17s. and £44 2s. each; *C. exoniensis*, very strong plant, £23 2s.; *C. Mendelii*, fine variety, £11 11s.; *C. labiata Warneri*, £7 10s.; *C. labiata*, £23 2s. and £13; *Cypripedium Stonei* var. *platytænium*, 140 guineas; *C. Spicerianum*, £26 5s.; *Cœlogyne cristata Lemoniana*, £34 13s.; *Laelia elegans euspatha*, £16 5s. 6d.; and *L. alba*, £23 2s.

— “W. J. M.” sends the following upon THE WEATHER IN MUNSTER:—“The weather for the past fortnight has been very

remarkable. While there was any moisture either in the atmosphere or in the soil near the surface, we had sharp frosts (several degrees) every night, with scorching hot sun during the day, and a persistent dry north-east wind. At present, with a view from our windows of several miles, I cannot perceive anything green. Had the dreaded simoom from the African deserts paid us a visit I cannot imagine an effect more parching. I have been watering my outdoor hardy plants for the past week to keep them alive until more genial weather comes. Early buds and tender flowers have been dried up from the combined causes named. At present there can be no frost, because there is no moisture to freeze."

— WE learn that at a recent meeting of the DARLINGTON GARDENERS' INSTITUTE Mr. J. Bousfield read an excellent treatise on the "Mixed Flower Border," in which he gave particulars of the plants to be employed, and the mode of arranging them to provide a succession of flowers from early spring until late autumn. In the course of his remarks he thus referred to *Tropæolum Hunteri*—"I saw this fine *Tropæolum* at Raby Castle. It was dwarf as a *Viola*, and a mass of scarlet flowers even surpassing *Vesuvius Pclargonium*. Mr. Westcott valued it highly, and said he would propagate some thousands of it. He had it from Mr. Hunter of Lambton Castle, but though called by his name it was not raised by him."

— THE following GARDENING APPOINTMENTS have recently been made—Mr. W. S. Campbell, late gardener to Wm. Garnett, Esq., Lucan House (Fair Lawn), Ripon, has been appointed gardener to R. S. Donkin, Esq., Camp Ville, North Shields; Mr. Charles Warden, late foreman at Sarsden House, Chipping Norton, succeeds Mr. Frisby as gardener to Col. Bathurst, Clarendon Park, Salisbury; Mr. D. Judd, late gardener at The Castle, Warwick, succeeds the late Mr. Gray as gardener to C. Seeley, Esq., M.P., Brooke, Isle of Wight; Mr. William Hazel, late foreman at Warnham Court, Horsham, has been appointed gardener to Lady Ormathwaite, Warfield Park, Bracknell; and Mr. J. Legge, late foreman at The Castle, Warwick, succeeds the late Mr. Broadbridge as gardener to Sir Charles Mordaunt, Walton House, Warwick.

— AT the recent annual meeting of the NEWCASTLE-ON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY Mr. Gillespie, the Secretary, read the report, which stated that to place the Society on a firmer basis it had been resolved to incorporate it under the Board of Trade, with powers to form a botanic garden, should there be an opportunity at any future date. The Treasurer's report was read, which showed a deficiency of £234 3s. 7d. On this account the Committee have decided not to hold an autumn show this year. The loss from that source last year was £300. Mr. J. G. Riddell, Swinburne Castle, was elected President, and the Mayor of Newcastle, Alderman Angus, Vice-President for the present year.

— "W. R. K." writes as follows on the EFFECT OF THE WINTER ON ROSES NEAR MANCHESTER—"The last two winters have been the more disastrous to outdoor Roses than any since 1860, and amongst others I have lost many of the older varieties that have weathered all seasons till the last, notably Charles Lefebvre, Etienne Levet, Madame Charles Wood, Victor Verdier, Madame Victor Verdier, Général Jacqueminot, John Hopper, Eugène Appert, François Michelin, Sénateur Vaisse, Beauty of Waltham, and Mrs. Rivers, also the Baronne de Rothschild, which till the last frost appeared to have weathered the winters. Out of forty-eight varieties planted last season I have lost nearly three-fourths; the season of 1879-80 not quite so many. Last season many were cut down to the snow line, and afterwards made noble plants. This they appear to have suffered a little below the surface; but as I plant my Roses rather deep I hope to see good strong

growth again, but expect very few flowers except on those planted this month, which so far look very well indeed."

#### MR. WILLIAM ROBINSON.

MR. WILLIAM ROBINSON is apparently galled at losing his action for libel against us, and shows his chagrin in the last issue of his paper in a manner which we have no intention of imitating: we therefore will not bandy personalities with him. With reference to his puny threat "to notice our doings" in the future, the public when they see these "notices of our doings" will judge henceforth by what spirit our critic is actuated, and whether it is to gratify a feeling of rancour or to advance the interests of "the profession." As the statements he has made are only the puling of a twice-defeated person we let them pass, with an expression of regret that horticultural journalism should have been made the vehicle of so much ill-feeling engendered of disappointment. The charge he has brought against Dr. Hogg is absolutely false, and is of a very serious nature. It accuses him, while holding an official appointment in the Royal Horticultural Society, of using influence which that appointment was supposed to give him to injure Mr. William Robinson. He says, "Dr. Hogg when Pomological Director of the Royal Horticultural Society would not allow the *Garden* to be taken at Chiswick for the young men's reading or for the office." We are in a position to state that this is untrue, that all orders are and have been carried out through Mr. Barron, and that the following letter to Dr. Hogg received from Mr. Barron is a complete refutation of this base calumny—

"Royal Horticultural Society, Chiswick Garden, W.,  
"April 4th, 1881.

"SIR,—I observe a statement in the *Garden* of Saturday last, that whilst you were Pomological Director of the Royal Horticultural Society you 'would not allow the *Garden* to be taken at Chiswick for the young men's reading room or for the office.' I think it is due to you for me to say that this statement is untrue. As a fact the *Garden* was not one of the gardening papers taken in at Chiswick at that time, but I was never forbidden by the Board or yourself to order it, and since you have been Secretary it has been taken in regularly. I shall write to Mr. Robinson to correct the statement.

"I am, Sir, your obedient servant,

"A. F. BARRON."

We are at a loss to conceive what good purpose can be served by the course Mr. William Robinson is pursuing. Horticultural journalism has for the present generation at least been conducted with every sense of propriety, good feeling, and good taste; but the course he has adopted, not only towards ourselves, but with one or two exceptions to every one of his contemporaries, is devoid of either of these. He assumes the part of a censor of men superior in every respect to himself, and he criticises his contemporaries in a style which can only be characterised as impertinent. We will not treat our antagonist as he attempted to treat us, believing as we do with a daily contemporary that "there is no more pitiable confession of weakness than for one journal to appeal for legal protection against another. How can a newspaper which has so little faith in its own ability to defend itself expect to be respected by the public generally as a powerful organ of opinion?" We now part with Mr. Robinson as Uncle Toby parted with an overgrown fly that buzzed about his nose one day at dinner. "Go, I'll not hurt thee, says my Uncle Toby, rising from his chair and going across the room with the fly in his hand—I'll not hurt a hair of thy head: Go, says he, lifting up the sash, and opening his hand as he spoke, to let it escape. Go, poor creature, get thee gone; why should I hurt thee? This world surely is wide enough to hold both thee and me."

#### ABOUT FLOWER SHOW SCHEDULES.

SOME time since an esteemed friend of the writer, who is well known as an excellent contributor to your pages, drew the attention of your readers to certain matters in connection with the framing of schedules of prizes at flower shows. Many of the smaller societies which hold shows in the months of August and September will now be constructing or reconstructing their prize lists; therefore if the subject of classifying the various fruits and vegetables that are usually shown in collections could be discussed in the pages of the *Cottage Gardener* much good might be done, much dissatisfaction at the judges' awards avoided, many reflections on flower-show committees would be stopped, and generally speaking everybody interested, from the visitor to the judge, would be more certain of the objects aimed at and better satisfied with the results.

Collections of fruit or vegetables are one great source of annoy-

ance and of dissatisfaction; they also leave more room than anything else for cavillers and for the exhibitor who "never gets his ain." At a local show last year, where the term "collection of vegetables of eight sorts" was used, much dissatisfaction was expressed because of the winning collection being of no better quality than some of the others in any other respect save that of containing a dish each of Tomatoes and Globe Artichokes, which the judges, very properly I think, considered a better class of vegetables than Carrots or Turnips. This year the Committee, to obviate the difficulty, have inserted a clause prohibiting Tomatoes and Artichokes; at the same time they show their appreciation of the Tomato by offering a prize for six, of the same value as the prize for two heads of Celery. If some authority could lay down any rules by which the relative values of fruits and vegetables could be easily understood, such blunders as the one just referred to would be easily avoided. Of course the value of different vegetables or fruits would depend greatly on the season or time of year at which they were exhibited. In the same prize list alluded to the prize for one pint of Gooseberries is equal to the prize offered for six dessert Pears, while double the amount is offered for one Melon as against six Peaches. The same absurdity

of arrangement and apportioning of prizes is seen through the whole of the schedules of the shows in this neighbourhood.

Fruits and vegetables are not alone in the extraordinary manner in which they are valued by flower-show committees. The remarks apply equally to cut flowers and plants. Here is one specimen: For six exotic Ferns (varieties) exactly the same money is offered as for six Zonal Geraniums. Cut Flowers.—Twelve French Marigolds and six Hollyhocks are upon equal terms. Such is the state of things with us; and if Mr. Witherspoon will once more give us some of his ideas gained by a lengthened experience in these matters some good may be obtained. Surely gardeners and exhibitors will not allow such absurdities to exist in prize lists for ever. Let us have some standard authority whereby we can measure the relative value of each subject in each month of the year. There ought not to be any more difficulty in this matter than there is in deciding what should be the "weight for age" in horseflesh.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth.*

#### FICUS STIPULATA.

EVERY gardener is acquainted with *Ficus stipulata* under its



Fig. 64.—*FICUS STIPULATA* (FRUITING AND BARREN BRANCHES).

more common but less correct, name of *Ficus repens*. In many gardens it is largely used as a neat and effective shrub for covering moist and shady walls or rockwork, a purpose for which it is unusually well adapted; but not the least interesting feature connected with the plant is its dimorphous character as occasionally shown under cultivation. If I mistake not, this may be seen in both its large and small-leaved phases in one of the plant houses in the Chelsea Botanical Garden, but I am not aware that fruit is produced there; indeed the fruiting of this plant in cultivation is a very rare occurrence. A few weeks ago, however, Mr. Bewley of Blackrook, near Dublin, very kindly brought me fresh specimens of the fruiting branches, one of which is shown in the accompanying illustration, along with a twig showing its small-leaved and usual growth. Both branches and fruit are shown of the natural size, and so distinct are the fruit-bearing branches from the creeping slender-growing ones that we might be excused for doubting their specific identity, the large-leaved fruit-bearing branches being more like those of *Ficus barbata* in general appearance than those of the species to which it really and truly belongs. Wonderful as the dimorphous characters undoubtedly are in the plant we now figure, there are analogous if not precisely similar instances of it in other genera, the common

creeping and the sub-shrubby or erect-growing forms of the common Ivy for example. Among aquatic plants *Pontederia* (*Eichornia*) *azurea* and *Ranunculus aquatilis* both exhibit dimorphism in an unusual degree, nor must we omit to notice one or two species of *Pothos* and the allied *Maregravias*. Again, the first leaves of the *Sagittaria* are simply strap-shaped and floating, and quite unlike the erect arrow-head-like leaves produced by the same plant later in the season. Some *Acacias* and the Australian Gum Tree (*Eucalyptus*) also have dimorphous leaves; but of all the cases of dimorphism known to me, none is more striking or more interesting than that of *Ficus stipulata* as here engraved.—DUBLINENSIS.

#### GYMNOGRAMMA SCHIZOPHYLLA.

FERNS are now so largely represented in most gardens, and their gracefulness so generally admired, that the demand both for the old well-known species and for novelties is very extensive. In consequence immense numbers of Ferns are grown for sale, and there is a corresponding influx of rare or previously unknown forms which collectors in various parts of the world are constantly finding and despatching to this country. To such an extent indeed is the dis-



covery of new Ferns now carried, that a very high authority upon the subject has estimated that additions to the list of known species or varieties are being made at the rate of fifty or sixty per annum. Many of these are only received in a dried state, and of the others comparatively few are sufficiently distinct or elegant to merit much attention from horticulturists. One of these few is, however, the new member of a well-known genus represented in fig. 65, which was obtained by Messrs. Veitch & Sons of Chelsea from Jamaica a short time since, and as it is likely to become one of the most graceful basket Ferns, it well deserves the attention of all who are interested in such plants.

*Gymnogramma schizophylla* does not possess the beautiful dusting of gold or silver farina which renders the fronds of many of its relatives such popular favourites, but the extreme elegance of its habit and the graceful contour of the fronds amply compensate for the absence of the characteristic covering. The fronds are very finely divided, tripinnate or decompound, the ultimate divisions being small, linear, notched at the apex, and bright green. In a young state the fronds are tapering or lanceolate in outline like those in the centre of the plant represented, but as they

become older the opposite pinnae about the middle or towards the base extend considerably, thus imparting somewhat of a triangular appearance as seen in the lower fronds of the engraving. They scarcely exceed a foot in length upon the living specimens I have hitherto seen, but dried fronds have been received nearly twice that length, and proliferous towards the extremities as in some *Aspleniums* and other Ferns. The graceful arching habit of the fronds renders the plant especially adapted for culture in baskets, as the woodcut which was prepared from a specimen in the Chelsea nurseries admirably shows; and suspended from the roof of a warm fernery sufficiently low to enable the whole form of the plant to be seen, it can scarcely be rivalled when in good condition. The quick growth and healthy appearance of young plants suggests that this Fern would not be difficult of cultivation provided due attention be paid to ensuring efficient drainage either in pots or baskets, but if grown in the former the plants need elevating upon something owing to the fronds drooping over the sides. One great recommendation of the plant is that it can be readily raised from spores, which, like those of several of its allies, grow very quickly, and a stock of young plants can thus be



Fig. 65.—GYMNOGRAMMA SCHIZOPHYLLA.

soon obtained, for the spores seem to be produced freely after the specimens reach a moderate size.

The Royal Botanic Society awarded the introducers a certificate for the plant at the recent show. It should be grown in every collection of Ferns.—L. CASTLE.

#### ROSES ON THEIR OWN ROOTS—THE WINTER.

MANY thanks to Mr. W. Taylor for his contribution to the subject of Roses on their own roots. His practical experience would rather seem to bear out my views that it is quite worth while to try them, and I do not doubt that those who follow his directions will not regret the trial. Last year will not, I fancy, prove a very favourable season for the experiment, for although my cuttings in the frame are looking fairly well, those outside are, I fear, nearly all lost. Mr. W. Taylor mentions the ease with which the Teas strike, and there again we have what I have mentioned before in writing of the Hybrid Perpetuals—an almost thornless wood. Whether it be the case or not that thornless varieties strike more successfully, I still trust that many of my amateur brethren may try the experiment and report progress. "OXONIAN" thought my previous letter on the subject proved that it was a difficult and lengthened affair to have Roses well established on their own roots. If he were to see the Teas that Mr. W. Taylor can produce I fancy

he would be somewhat surprised. Had I any frames I feel certain that more than half would strike. I am going, however, a little further. Since I wrote in reply to "OXONIAN" I have paid a visit to the garden where the bulk of my plants are, and I was dismayed. It is situated low, and it is exposed to the full effect of the braeing north-easter. There was a blackened mass of sticks of varying shades, scarcely a solitary stem retaining any appreciable green. Protection for several inches had been given, and with a heavy heart I proceeded to remove a little of this, and was rejoiced to find the colour below different. That was six weeks ago. The last ten days—it is now the 17th—I have been pruning, and no one going to that garden would believe I had any Rose trees; they would see some beds with apparently a little litter on them, and here and there might recognise a Rose stump, for out of about six hundred dwarfs (excepting the forty or fifty on their own roots) not twenty could be pruned leaving 2 inches above ground, and many have been pruned an inch below the surface. Shall I have any Roses? Well, I live in hopes, but I am convinced that it is no use trusting to wood that is practically dead, though many will say, "Dead! Why, look how it is pushing out shoots." Well, May and June will prove the value of such shoots. Out of the forty or fifty on their own roots certainly half are less damaged by the severe cold than are the old plants, and I have been able in several of them to leave some inches above the surface. This

may be accidental, but the plants are all together, and no difference made in them, and the result is quite unexpected to me.

At the back of my house, in a far more sheltered spot surrounded by buildings, I have about three hundred dwarfs, and these I fondly flattered myself were not so much damaged. The buds were becoming full and the tops bursting into leaf, only one here and there appeared black; but they will not bear inspection, and nearly all must be cut to the ground before arriving at sound pith. Beautifully as many seem to be growing, cutting-off shows a stem green on the outside truly, but the heart as brown as possible. We had 28° of frost in Wiltshire before the snow came, and afterwards 32° was registered by a neighbour, whose thermometer had but recently been proved. I cannot but think that for such temperatures a well-established plant on its own roots has a better chance than any budded specimens.

"A. C." speaks of his standards. I have but a dozen. One, Annie Wood, I should say is hopelessly gone; another, John Hopper, and another, La France, now look like "A. C.'s" knobs on a stick, and I cannot help thinking they will do as much without the knob as with it! Another great favourite, an old-established plant, from which I generally cut from twenty to thirty blooms, Jules Margottin, has old wood as thick as my finger, the pith of which is intensely brown. I do not expect to see it bloom again; the others I have not cut. I was in a neighbour's garden to-day. She is a devoted worshipper of Roses, and she did not think hers were hurt, but the standards are all the same. I was also in a cottage garden where the poor woman takes a pride in her Roses, and where she had recently filled the gaps in her beds by new plants. I went to one and cut off one of the two shoots on it; the result was the same—pith quite brown. Here I believe that unwittingly dead plants have actually been sold; and if I state my own belief, it is that very few standard Roses in this neighbourhood are good for anything but firewood, and they are not valuable for that, as their thorns are in the way.

All this is the more grievous, for I verily believe that more persons joined the ranks of Rose enthusiasts last year than ever. I ordered several hundreds for various friends. Mr. W. Paul, writing to me not long since, said he had never known so many new persons "going in for Roses;" and what a damper this will prove if many standards and not a few dwarfs are lost. My few Teas I have not yet examined, but Souvenir d'un Ami, dwarf and resting against a greenhouse, and forgotten as to protection, is, thanks to the wall, better than any Rose I have yet cut. Triomphe de Rennes (a standard) against the wall is only a knob, and that I fear dead, whilst a dwarf alongside is cut to the ground.

One word to my old friend "WYLD SAVAGE." He used to be a grower of Teas. The Tea election proved there were not many worth much, but still I fancied that "WYLD SAVAGE" could have named twenty-four that would grace a stand. What has happened to his beloved Marie Van Houtte? Again, cannot Cloth of Gold be added to the list? One of your correspondents has named Jean Ducher and others that certainly at their best are fit for a stand. I agree with "A. C." in believing that Comtesse d'Oxford has suffered terribly.—Y. B. A. Z.



#### KITCHEN GARDEN.

ANY deficiency in the plantations of Rhubarb through the roots being lifted for forcing purposes should now be made good. Plants for this purpose are generally those that have been used for forcing, but they are not so good as plants taken at once from the ground. Divide the roots, reserving two or more crowns to each. Plant in rows 4 feet apart and 3 feet asunder, and for permanent plantations allow a foot more distance between the rows and plants. Healthy portions 4 to 6 inches in length of Seakale roots that have been reserved in sand as the crowns were lifted for forcing, have now formed a callus, and should be planted in well-prepared ground 2 feet apart in rows 1 foot asunder. Crowns that have been lifted for forcing and afterwards hardened off by placing them in sand in a cool shed should also be planted out, and they will be again available for forcing when the time comes round. Roots that were rejected as too small for forcing must now be planted, and if they have prominent crowns and are likely to start into flower-heads remove the point with a

knife. Where seed is intended to be sown sow it in drills about 18 inches apart, and thin the seedlings to about 12 inches. The protecting material may shortly be removed from around the crowns of Globe Artichokes, and should be replaced with a mulching of manure about 3 inches thick. To secure large heads of this esteemed vegetable it is essential that vigorous young plants be obtained, and for ordinary purposes a new plantation should be made every year about this time; these plants will afford a moderate quantity of heads this autumn and produce abundantly next season. Retain a portion of old root to each division, choosing pieces with two or three suckers, or if more reduce them to that number, planting rather deeply in rows 4 feet apart and 3 feet asunder. Water if necessary, and mulch to prevent evaporation. Planting out autumn-sown Cauliflowers, Cabbage, Lettuce, and Tripoli Onions has been impeded by the weather, but no time should be unnecessarily lost in proceeding with the work. Cauliflowers, Cabbage, Brussels Sprouts, and Lettuces that have been raised in heat, pricked off, well grown, and hardened, should be planted out when the weather is favourable. Peas sown in pots or turves may be planted in warm borders, placing the sticks thickly as a protection. The principal sowing of Broccoli should be made at once; Penzance, Cooling's Matchless, Leamington, Lauder's Goshen, and Model are good sorts for early spring succession and late use; and for late autumn and winter Snow's Winter and Veitch's Protecting Autumn. Sow Brussels Sprouts, Savoy, Borecoles, and Cabbages of the early varieties for autumn use, and Cauliflowers, Walcheren and Veitch's Autumn Giant, for a supply of heads from August or September onwards. The young plants from earlier sowings of Brassicas when large enough should either be thinned out or be pricked off in prepared beds to secure a sturdy habit. Sow Celery in rich soil on a sheltered border; plants from this sowing are for late use preferable to those raised in heat. Attend to the requirements of Peas in earthing up, staking, and guarding against the ravages of birds and slugs by dusting whilst damp with soot, dry wood ashes, or quicklime. Make successional sowings of Peas and Broad Beans according to the probable requirements. Sow also the principal crop of Carrots for winter use and Beet for early use, Egyptian coming in quickly, deferring the principal sowing until the early part of next month. Salsafy and Scorzonera may now be sown in deep rich soil in drills about 15 inches apart, covering an inch deep, and guarding against mice. Sow Basil, Sweet Marjoram, and Summer Savory on a warm border, and on a sheltered one Thyme, Sage, and other perennial herbs that may be raised from seed. Divide and replant herbs generally when necessary. Complete the planting of early Potatoes, proceeding with the second early.

*Forcing Department.*—Supply water if necessary to Potatoes before earthing them, but less will be required as the tubers attain to a size for use, as too much of it will deteriorate the flavour. Thin-out later crops of Carrots, and plentifully supply them with water, also Radishes and Lettuces. Prick off Celery from seed pans in rich soil over slight bottom heat, affording sufficient warmth to ensure steady progressive growth. Sow Tomatoes and Capsicums. Transfer Tomatoes into their fruiting pots, and remove all side growths, one stem being most suitable for plants in pots. Whenever the weather is favourable ventilate freely all frames or pits containing vegetables. Earth up advancing crops of French Beans in pots or in pits, supplying water copiously, and if necessary liquid manure. Sow as needed to maintain the succession unbroken.

#### PLANT HOUSES.

*Greenhouse.*—Cuttings of Salvias should now be inserted so as to have good plants by autumn, also Linum trigynum and Libonias. Bouvardias and Tree Carnations require to be struck early and to be potted and well grown to procure strong plants. Sow seeds of Primula sinensis for autumn flowering, employing good loam with about a third of leaf soil and a little sand; also sow Cinerarias for autumn flowering. Calceolarias should be potted as they require it, selecting the most vigorous and such as are not yet showing flowers, and when they are rooted in the fresh soil supply liquid manure. These plants like a humid atmosphere and to be kept in a cool position, fumigating upon the first appearance of aphides. Supply Pelargoniums now showing their flowers with weak liquid manure, and if the pots are

filled with roots the soil must not be allowed to become dry. Keep the shoots well trained and tied out. Plants intended for July flowering should have the points of the shoots pinched out to cause them to break back, and if in comparatively small pots shift into others a size larger. Keep a strict look-out for aphides, and fumigate promptly upon their first appearance. Repot Fuchsias, stopping the shoots until the plants are sufficiently furnished, which more particularly applies to those required large for conservatory decoration. Syringe every afternoon to keep down thrips and red spider. Chrysanthemum cuttings that were inserted late last year are now ready for potting off or shifting into larger pots. Employ good loam with about a sixth of decayed manure and a sprinkling of bone dust. Pinch out the points of the shoots of such as are required to break back, but those for specimen blooms should be stopped. Place the plants on ashes in a cold frame, and ventilate freely in favourable weather. Acacias will now be making a fine display, and must not lack water at the roots. When they cease blooming cut in any irregular growths, and if there be any white scale free the plants of it with an insecticide. Camellia plants that bloomed early will be growing, and should be placed where they can have slight shade, and a temperature of 55° at night and 10° to 15° advance by day. Afford plenty of moisture at the roots, supply weak liquid manure to plants in small pots. Those that bloomed at midseason will also be growing, and should be encouraged with moisture, shade, and a slight increase of temperature. Late varieties, such as C. Beali, red, and C. candidissima, white, must be shaded and kept as cool as possible.

Epacris that have flowered should be pruned, and if the plants are as large as required they may be cut back to within an inch or two of the old wood. These plants bear cutting-in annually to a greater extent than most other hardwooded plants, hence the size of the plants can be regulated according to the taste and requirements of the cultivator. If cut back freely the plants must be confined to comparatively small pots, or they will not thrive satisfactorily. A slight increase of temperature and the damping overhead from a syringe in the afternoon will be beneficial.

Heaths should now be examined, training their flowering shoots in the position they are required to be when in bloom; in doing which use as few sticks as possible—only sufficient to keep the plants in proper shape. Any plants required for blooming later should be placed in a house where they will be less exposed to the sun, but must only be shaded with a light material during the hottest part of the day.

Ferns are now growing fast, and must be well supplied with water at the roots and have increased atmospheric moisture. Tree Ferns should have the stems syringed twice a day, being careful to see that the roots at the bottom of the pots or tubs do not become too dry, as the surface may appear wet. If the pots or tubs be small, healthy vigorous plants will require water twice a day.



#### CALENDAR OF OPERATIONS IN THE APIARY.

##### APRIL.

FEW seasons would show more clearly the advantage of a special calendar than the present one. The lateness is here extreme, the temperature low, and the "weather forecast" not encouraging. In early springs Peach blossoms have been open on a south wall of ours on March 1st; but now, April 4th, the fully swollen buds are yet waiting for a change before expanding. The present danger is from two sources—shortness of food in the hive, and over-haste in the bee-keeper; and that the latter is not imaginary is evident, as we have already been asked whether it was not fully time to force swarms and divide for increase. In regard to food, do not suppose that combs fully stored and sealed and quite outside the brood nest will keep bees breeding. These combs indeed are, unless used by the bees, a hindrance rather than a help, as they cool the colony by obliging the hive to be left larger than would otherwise be necessary. Such combs may be uncapped, when the bees will be stimulated by removing their honey into more central portions of the hive, but the majority of colonies will be found now to have empty combs on the outside of the cluster, and judgment will be required in determining whether these had better be removed or no. If empty and not im-

mediately needed either for store or brood they had better be removed, as they actually cause a consumption of honey for heat-production by their presence, while as the bees increase and expand, as they presently will with more genial weather, they can easily be restored. Of course, all depends upon varying conditions. My colonies are now generally densely packed in seven frames, and such could not be contracted; indeed, a rising thermometer will demand for them new frames in quick succession.

FLOUR CAKE should still be given and the supply kept up, when breeding will not be relaxed; but in the giving of liquid food during such biting wind as is now prevailing it is important that the supply should not be continued during the day; or the bees, learning that store is really being found somewhere, will surely fly abroad to be chilled and destroyed in large numbers, while those that do return will do so empty and exhausted. I have the last week been especially trying syrup-feeding upon two stocks, giving twenty others flour cake; the latter have all been quiet, flying for water and artificial pollen, as the weather has seemed to warrant, while the former have been in continued unrest. The owner of skeps should especially remember that as the winter has disposed of the honey of the previous season, while brood-raising now requires a good income to make both ends meet, feeding is increasingly essential in unfavourable weather. If this be forgotten the bees as the pinch comes stop raising brood, while they suck the juices from the larvæ, and tear the chrysalides from their cells and eject them from the hive. When these are seen they are sometimes described as "white bees;" but this sign of starvation does not present itself till immense mischief has been worked and the profitableness of the stock reduced probably for the whole season. Instant feeding is in such cases the remedy.

Queenlessness may be suspected if stocks carry few and small pellets of pollen while others are busy with large well-formed loads. Should the owner of a queenless colony, which is also a fairly strong one, be also unhappy enough to possess one having foul brood, it will be wise to give a frame of brood to the queenless lot from some other healthy colony a week after destroying carefully all queen cells, and then caging the queen from the diseased stock upon the brood comb and liberating her in two or three days in the usual way. Uniting is, however, the best course in most cases of queenlessness. Artificial pollen is yet of immense service, and my bees are taking it greedily at every opportunity the weather gives. Water is very important, and much bee life is spared if the foragers have an unfailing supply at hand. When honey is being freely gathered it is at once food and drink, but in dry east winds water is essential, and the drinking fountain will then be the best frequented spot in the apiary.

Those who intend raising queens of any special race in advance of the usual season so as to favour pure impregnation should insert a frame of drone comb in the midst of the brood nest of the colony intended to supply the drones. Robbing is likely to occur if there be any untidiness with the syrup. Spilling a few drops about a hive when honey is scanty brings a host of inquirers, and often they get inside what they have failed to secure without. Contract the mouth as a remedy, and especially try giving to the entrance the form of a narrow tunnel.

Section crates, guide combs, foundation strips, and all the paraphernalia of the busy season should be prepared at leisure while transferring, and all work of this kind had better be deferred till next month. I shall be happy to show my stocks to those who are interested.—F. CHESHIRE, *Avenue House, Acton.*

#### THE BEES OF THE ISLAND OF CEYLON.—No. 2.

##### A JOURNEY TO THE INDIES—IMPORTATION OF CYPRIAN AND HOLY LAND BEES INTO INDIA.

(From the "Ceylon Observer," January 28th, 1881.)

It was a long journey that brought me from the island of Cyprus to this place. Several hundred miles of the Mediterranean Sea had first to be crossed, then after a short delay at Port Said the Suez Canal was passed, and our steamship the "Sindh" of Marseilles entered the Red Sea. Six days steadily she bore southward, greeted only by shifting hot desert winds. For a time Mount Sinai looked down upon us, then we saw no land until we neared the Strait of Bab-el-Mandeb. At Aden the anchor was cast; but as our stay was to be of only a few hours' duration, I could not think of giving the bees I had brought with me a chance to fly, though they had "worried some" under their confinement during the Red Sea journey. I landed in hopes that by going to the town of Aden, some three miles distant, I might find some bees. I was told that it was seven days' journey to the region where there were any tillable lands, and no one knew where there were any bees. Although our steamer was a fast mail boat we were as long going from Aden to Ceylon as it often takes to cross the Atlantic Ocean. The journey seemed all the longer to me, as there were many thousand tiny voices pleading for liberty. The officers of the ship afforded me every facility available to insure the safety of my charge, but the heat of the torrid zone was severe, and though the shipping boxes were well provided with wire-cloth ventilators, nothing but a flight would benefit some of the colonies; it was, therefore, a gratifying sight when the rich Palm-covered island of Ceylon rose as it were from the dreary waste of waters.

As soon as I could I unloaded my precious freight and proceeded to secure a place to stand the bees for a flight. I obtained the



privilege of putting the hives on the back porch of an unoccupied house, and the little immigrants from Cyprus and the Holy Land were soon making the air resound with their humming. I found to my joy that every queen was alive and most of the colonies in good order, those to which I had given sugar and water during the latter part of the journey having commenced brood-rearing. The colonies in the best condition were those whose food up to the last few days of the journey had been wholly honey in the comb and whose hives contained 850 cubic inches, into which four frames 9 by 10 inches had been placed. Of course I was eager to see the bees of Ceylon. From all previous accounts I was led to suppose that *Apis indica*, a small bee, and *Apis dorsata*, a very large bee, existed in Ceylon. From the moment I landed I made inquiries as to where the bees were to be found, but the reply invariably was, "Only in the jungles." No horses could be obtained, and carriages go but a short distance from the town; so, staff in hand and a man to act as guide and interpreter, I started for the jungles. We had only travelled about an hour and had not yet reached the jungles, when a native in the dress of the poorer people—simply a cloth about the hips—volunteered to show us a tree containing bees. He brought us to a large Cocoa-nut Palm, and about a dozen feet from the ground honey bees were flying in and out. Very strange-looking and very swift-winged little bees they were with loads of pollen and honey. I could not, for some time, catch one in my fingers, but at last I succeeded. Another tree containing the same kind of bees was shown us a few rods away. These were low down, and I put my hands into the hole and broke off a piece of comb. I could not but laugh outright at the tiny hexagonal cells, which suggested that these were only baby bees playing; they were real grown-up folks gathering honey and pollen against a time of need.

The new-found guide assured me through the interpreter that he could take us to a tree containing some of the large bees, which, however, turned out to be hornets. There are contradictory reports regarding the existence of a race of large honey bees in the interior of the island. Everyone has noticed that in general our large humble bees pass the smallest flowers unvisited, and white Clover amongst others, which we know contains much honey. Now just as the idea has come to me that if we could secure a large race of honey bees, such as is perhaps *Apis dorsata*, which could obtain honey from red Clover and other large blossoms, we should find it a great gain to apiarian interests; so, also, I have wondered if the smaller race or sort would not collect the honey which must be found in the tiny blossoms and more accessible to the small bees alone. I believe there are possibilities in this direction quite worthy of consideration, and that the two sorts might be kept in the same locality with no detrimental division of the field. Already I have observed that my little friends of Ceylon do not scorn very humble blossoms upon which I have never seen our ordinary-sized honey bees. Some of these small blossoms are very rich in nectar. To sum up, then, I would say that I believe the probabilities are in favour of the newly acquired bees. I do not mean to say they can or will supplant our other bees, but only that it seems likely they can be profitably raised in those countries—possibly in the same apiaries—where other races of bees are kept. They may be somewhat inclined to rob other hives, but as regards their own disposition to collect honey and pollen, the prolificness of the queens, the great beauty of the bees, the fact that the drone comb made by this race can be used as worker comb in our hives of ordinary bees, together with the great ease, rapidity, and safety with which they can be manipulated, are certainly strong points in their favour. Should I succeed in transporting to my native land (America) living bees of this species alone I shall feel that my stay in Ceylon has not been in vain, for even if they should not prove to be of great practical value, still their introduction will help to increase our knowledge of apiarian science.—FRANK BENTON, *Point de Galle, Island of Ceylon.*—(Communicated by Alfred Neighbour.)



**Books** (*A. N. Hansen*).—All the works you name can be had from this office post free for 4s. 8d. sent to the publisher. The Rose you name is not grown in England under the name of Queen Victoria, but may be on the Continent. On this point you may obtain information from the author of the article to which you refer, and whose address is incorporated therewith. Relative to this subject we have received the following from an eminent amateur rosarian—"re an international Rose election. Teas Souvenir d'un Ami and Queen Victoria surely are not synonymous. There is a well-known H.P. Queen Victoria, and I remember many years ago having a Bourbon climber of that name. Manifestly there must be some mistake about the latter. The results of the poll are a little inaccurate otherwise—to wit, Which five H.P.'s are the freest and most abundant bloomers for the summer? La France, Jules Margottin, Général Jacqueminot, and two others our friend Mr. Hinton would hesitate at admitting—Bourbons Souvenir de la Malmaison and Louise Odier (Madame de Stella). Then, again, the ten novelties from 73 to 78 are mentioned by name. I do not think an Englishman would have chosen them without 'the slightest hesitation;' but foreigners do these things differently. Still they should be accurate.—C. H. B."

**Double Cyclamen** (*W. H. Manser*).—Your flower is to a certain extent novel, but it is quite a matter of taste whether a variety having more than the

normal number of petals is more attractive than large-flowered single forms with broad smooth petals. But although your flower is novel it is by no means the first of the kind that has been sent to us, as we have seen flowers with a greater number of petals than in the example before us. Double flowers are, however, not numerous, and your variety is worth preservation.

**Designs for Carpet Beds** (*C. Lamb*).—You will find designs such as you require in the following numbers of this Journal, which may be obtained from the publisher, post free 3½d. each:—Nos. 910, 914, 916, 918, 932, 939, 940, 945, 995, 996, 997, and 999. There is also much information upon the subject, with numerous plans, in the "Royal Parks and Gardens of London," published at this office, post free 5s. 5d.

**Auriculas in Yorkshire** (*J. L. Herts*).—Mr. Douglas's descriptions of Mr. Horner's Auriculas at Kirkby Malzeard, and Mr. Simonite's at Sheffield, are included in Nos. 790 and 791, the issues of May 18th and 25th, 1876. The numbers can be had from the publisher, price 3½d. each. The subject is not continued in other numbers, but you will find an article on the Auricula by Mr. Douglas in the same volume on page 325, No. 787. If you will state your missing numbers we will inform you if we can supply them. If an Auricula is unhealthy and not showing bloom we should at once remove carefully most of the old soil from its roots, and if these are not in good condition we should place it in smaller pot well drained, in a compost of sweet turfy loam and a liberal admixture of crushed charcoal.

**Grapes not Setting** (*W. C.*).—In your cold and exposed position you have not the means for providing the necessary amount of heat for succeeding with Muscats and the other late varieties that you name when the Vines are started in December. That your treatment is good is evident by the state of the Foster's Seedling and Black Hamburgs, and we think that under the circumstances you have done well to secure a good crop of these. As early Grapes appear to be important, the house ought to be divided, the late varieties being grown in one division, the early ones in the other nearest the boiler. In this case a little addition would be required to the piping, with the necessary valves for admitting the heat when requisite into the second division. By this arrangement you will succeed better with both early and late Grapes. The latter ought not in your case to be started before February.

**Hubbard's Squash and Butter Beans** (*Thomas Harris*).—The former vegetable has been grown in many British gardens, and seed used to be offered in some seedsmen's catalogues. We have grown it, but its quality was not generally appreciated. Butter Beans are regularly cultivated in this country, and may be had from nearly all seedsmen. Thousands of Castor-oil Plants are grown in England yearly for decorative purposes, notably in the London parks, but you are in error in stating they are quite hardy. They grow freely during the summer, and occasionally flower in the autumn in England, but the frost usually kills them before they arrive at the flowering stage.

**Marechal Niel Rose Sporting** (*E. M.*).—It is not unusual for flowers more or less tinted with rose to be produced by this variety. Many similar to yours have been sent to us from time to time. We are unable to state the cause of the change, but it is not caused by the sun nor from any error in culture.

**Boxes for Packing Peaches** (*An Inexperienced Lady*).—We use boxes made of half-inch deal, 12 inches long, 10 wide, and 3 deep, all inside measure, sufficiently large to hold a dozen of the largest fruit, and proportionately more of those of less size. The fruit is first wrapped in tissue paper, and then in cotton wadding. A little bran is placed in the box sufficient to cover the bottom about half an inch thick, the fruit being then introduced, and the interstices between the fruit filled with bran, quite filling the box with that material, the lid being put on and secured with screws. It is important that the fruit be very carefully handled and packed tightly in the boxes without pressure on the fruit. We send a great number packed in this way every year nearly three hundred miles by rail, and they invariably arrive in good condition. Any carpenter can make the boxes. The boxes may be made larger to accommodate a greater number of fruit, but we prefer the size given, and place them in another larger box with moss or other material about them to prevent their moving in transit.

**Pea Hurdles** (*Idem*).—Wire Pea hurdles are not only neater but quite as effective as Pea sticks, and last many years. They are, however, rather costly, as they require to be placed on both sides of the rows of Peas. They may be had from those advertising wire netting and Pea guards in our columns. We cannot depart from our rule not to recommend dealers.

**Vines Dying** (*G. C.*).—It is probable that the Vines, being planted outside, have had the stems frozen and their tissues destroyed, so that the sap cannot ascend, in which case they will push fresh shoots from near the base if there are any dormant eyes. There may be local causes that have conduced to the death of the Vines irrespective of the frost, which, however, we think the most likely cause from the severity of the winter and the inefficient protection of the stems. Probably those that are "looking very well" have had more efficient protection for the stems. Overcropping is a great evil, and if long continued causes complete enfeeblement and not infrequently death; in fact, from the Grapes not colouring well last year it is clear they were either overcropped or were not in good health. Afford in future more efficient protection for the stems in winter, and mulch over the roots with litter to protect them from frost, especially about the collar. Encourage more foliage, and crop moderately, and those that are "looking very queer" will in all probability improve.

**Flower Garden Arrangements** (*C. G. S.*).—An effective and harmonious arrangement may be made by planting in the large central bed 7, *Vesuvius Pelargonium* with a broad edging of *Marechal McMahon*. The four corner circles 1, 1, 1, 1, *Crimson King Verbena*; edging *Golden Feather Pyrethrum*. Four central circles 3, 3, 3, 3, blue *Lobelia*; edging *Crastium tomentosum*. Long beds 2, 2, 4, 4, broad central stripe *Christine Pelargonium* with a stripe of *Flower of Spring* or *Bijou* on each side; edging *Iresine Lindenii*. The flowers to be kept picked off the white variegated *Pelargonium*, the required colours being pink, white, and crimson. Long beds 5, 5, 6, 6, central stripe of *Scarlet Pelargonium Tom Thumb*, with a stripe of *Purple King Verbena* on each side, and *Mrs. Pollock Pelargonium* with the flowers kept picked off outside, the colours required in these beds being scarlet, purple, and yellow. The plants you have will, however, afford greater variety if required; but do not plant the beds in pairs as you propose, rather repeat the same arrangement in opposite corners 5, 6, or 2, 4. The circles 3, 3, 3, 3, should in any case have soft tints or neutral colours to break and subdue the brighter tones of the long beds. *Iresine* when used for an edging must be kept pegged and pinched. *Echeveria californica* may be used outside it, but as your beds are probably small it will be better to keep to single edgings. If stripes are not liked for the long beds, have simple masses of one colour in them—there might be *Christine Pelargonium* edged with *Flower of Spring*; *Purple King Verbena*, edged with *Mesembryanthemum cordifolium variegatum*; *Marechal McMahon*

Pelargonium edged with dwarf blue Ageratum; and Bijou Pelargonium edged with Lobelia.

**Tank Heating (E. C.).**—The mode of conveying hot-water pipes through tanks in horticultural structures is not done with the object of "excluding frost," but when the tanks are covered for affording bottom heat to plants and crops, such as various kinds of stove plants, Cucumbers, Melons, Pines, &c.; when open for maintaining a warm and very moist atmosphere in houses devoted to the culture of aquatic plants. For affording top heat hot-water pipes must be exposed in convenient positions, and in quantity in accordance with the temperature that is required by the plants or crops, and governed also by the height and exposure of the house. The subject of heating horticultural structures is referred to in its various phases by Mr. Fawkes in a new work that has recently been published. It can be had from this office, price 10s. 6d., post free 11s. 2d. Tanks are not suitable for heating greenhouses.

**Bone-meal (Inquirer).**—We do not remember having published a special article on this subject. The value of bones in various forms as a manure is admitted, and bone-meal has been frequently recommended in our columns as a good and safe manure for plants and crops. We extract the following from our small manual "Manures for the Many" (post free 3½d.).—"All bones contain more than half their weight of phosphate of lime, and are beneficial as a manure, because that chief constituent phosphate of lime is also a constituent of all plants; and the gelatine which is also in bones is of itself a source of food to them. The bones must be applied to the crops in very small pieces, or in powder; and 10 lbs., at the time of inserting the seed, are enough for 30 square yards, if sown broadcast; and a much smaller quantity is sufficient if sprinkled along the drills in which the seed is sown. There is no doubt that bone-dust may be employed with advantage in all gardens and to all garden crops; but it has been experimented on most extensively with the Turnip and Potato, and with unfailing benefit. Mixed with sulphur, and drilled-in with the Turnip seed, it has been found to preserve the young plants from the fly. Mr. Knight found it beneficial when applied largely to stone fruit at the time of planting; and it is quite as good for the Vine. To lawns the dust has been applied with great advantage when the grass was becoming thin. As a manure for the shrubbery, parterre, and greenhouse, it is also most valuable; and crushed as well as ground, is employed generally to mix with the soil of potted plants." The value of bone-meal has been rendered in the following expressive and suggestive verse, which students in schools of agriculture might well commit to memory—

"No bone-dust, no Turnips; no Turnips, no Wheat;  
No Wheat and no Turnips, no cattle, no meat;  
No Turnips, no cattle, nor manure in the yard,  
Make bills for the doctors, and farming go hard."

**Espalier Fence (Deodar).**—There is no objection whatever to the bar fence you propose to erect. We know similar fences that have been erected half a century, and they are furnished with splendid trees. The height of the fence is very much a question of taste and adaptability to position. We have seen them of all heights, from 4 to 10 feet. A height of 6 feet makes a fine fence, the lowest bar being 15 inches from the ground, and the highest near the top, with five other bars at equal distances between. By this arrangement you will have seven branches on each side of your trees. A 5-foot fence, which is a good and useful height for espaliers, would afford the means of training six branches from each side of the trees.

**Varnish for Iron (Baillif).**—The following has been recommended, which we publish, as you request us to state a mode of making what you want; but we advise you to do as we do—purchase the varnish that has often been advertised in our columns, and which is inexpensive and good. To make black varnish:—One gallon of coal tar, half a pint of spirits of turpentine, 2 ozs. of oil of vitriol, stirred, and laid on like paint. Mix with a piece of wood or stick the tar and vitriol, and then add the turpentine, and apply it with a brush. Mix no more than you can use at once, and then apply it as it becomes thick.

**"Can a Boiler Explode when the Flow is only a Quarter on?"**  
(An Under Gardener).—This is an important question, and your case is a common one—namely, that of a boiler, &c., to heat a conservatory, and coils of pipe in the mansion so arranged as to be heated separately or together, as is clearly indicated by the directions on the board by the valves, which states "that the valves of one circulation are not to be shut unless the other circulation is open." This means that the water must have means of circulation or the boiler must, from the expansion of the water in heating, explode. Instructions of this kind are rarely given, but they are highly necessary for those stoking, many young men not being acquainted with the principles of heating by hot water; indeed, we have more than once known a boiler heated by the fire with all the valves closed, and the water from its expansion making the boiler move in its place. If it had not been noticed soon enough there would have been an explosion, not more perhaps than to have attributed the disaster to a flawed plate, bad rivetting, or the boiler not being properly constructed, when in fact the real cause of injury would have been ignorance or neglect on the part of the stoker. Instructions of the kind named above ought to be in every stokehole where the boiler heats more than one compartment separately or together, and if attended to many a breakdown would be averted. As to the complaints about the heat in the mansion not being regular, that depends entirely on the stoker, although he may not know the heat other than as you state by feeling the pipes. If the pipes are hot either the coils are not sufficient for their purpose or more heat is wanted than can be had from hot water, but we do not think this is exactly what is wanted. Heat is wanted in the mansion, and none at the same time in the conservatory. Why should not the coil pipes be worked so as to heat the mansion when heat is not required in the conservatory? Surely heat is not to be expected without fire, and as no heat was required for the conservatory it appears to have been supposed that none was required for the mansion. This appears to us as if inviting complaint, for what sun would do for a conservatory it would not for a mansion, it not passing through walls the same as through glass. We now come to your point. The heat was turned entirely off the conservatory, the "fire was checked, the draught shut off, and the house circulation valve turned about a quarter of its full distance." We do not wonder that on telling your chief what you had done he stated "you were running a great risk, as the hot water having a large body of heat round it must have vent somewhere." Clearly you did not follow the instructions on the board, as "one valve was not to be shut unless the other was open." The furnace was at its full heating power or near thereto, hence the checking of the fire and draught, and the house circulation valve was only turned on a quarter, whereas, as no heat was wanted in the conservatory, it should have been turned on full. With a "quarter on" it was straining the boiler by diminishing the waterway, and were there a weak place in it, it was a sure method of finding it. It was no use checking the circulation of the water to keep down the heat in the mansion, for it would rush through the "quarter on" rapidly; for as your chief truly stated, "it must go somewhere," and if it could not get through fast enough then must come an explosion, the boiler plates or surface being unable

to resist the pressure. We are glad of the opportunity of stating our conviction that more breakdowns occur with boilers through inattention to the requirements of a free circulation of the water than to what our correspondent has been led to conclude, as many others have done—viz., "driving very hard." If a boiler will not do its work without being driven, the sooner it is taken out and replaced by one that works properly the better. There is nothing so wasteful about a garden as boilers requiring to be driven, as in that case more heat escapes from the chimney than is abstracted by the water.

**Plants for Name (W. H. W.).**—Our rule is not to name more than six specimens at the same time from a correspondent. These must be in good condition and fair examples of the species. Flowering plants can only be named from flowering sprays, and Fern fronds must have spores. When sprays of shrubs and trees are sent, some particulars of their habits must accompany them. Specimens always arrive in the best condition when packed with a little damp moss and sent in tin boxes. Sprays simply enclosed in letters arrive every week, and the majority of these are either so much crushed or withered as to render it impossible for anyone to determine their names. In some cases a piece of the root of flowering plants, if it possesses any marked characters, is a great assistance in naming the specimens.

**Names of Plants (S. B.).**—1, *Cypripedium barbatum*; 2, *Sedum earneum*; 3, *Adiantum assimile*; 4, quite shrivelled. (A Young Gardener).—The spray and cone are of *Pinus Pinaster*. (Mrs. C. Edwards).—*Iris fimbriata*. (Acron).—The spray is quite insufficient for identification.

#### COVENT GARDEN MARKET.—APRIL 6.

PRICES remain much the same, with little business doing.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons.....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches.....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert.....	dozen	4 0 8 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples ..	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	0 0 0 0	Strawberries ..	per lb.	8 0 12 0
Grapes.....	½ lb.	6 0 13 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto.....	½ 100	0 0 0 0

##### VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.		
Artichokes.....	dozen	2	0	to	4	0	Mushrooms.....	punnet	1	0	to	1	6
Asparagus.....	bundle	0	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3	6
Beans, Kidney....	½ 100	1	0	1	6	0	Onions.....	bushel	3	6	5	0	0
Beet, Red.....	dozen	1	0	2	0	0	pickling.....	quart	0	0	0	0	0
Broccoli.....	bundle	0	9	1	6	0	Parsley..... doz. bunches	6	0	0	0	0	0
Brussels Sprouts..	½ sieve	0	9	1	3	0	Parsnips.....	dozen	1	0	2	0	0
Cabbage.....	dozen	0	6	1	0	0	Peas.....	quart	0	0	0	0	0
Carrots.....	bunch	0	4	0	6	0	Potatoes.....	bushel	3	9	4	0	0
Capicums.....	½ 100	1	6	2	0	0	Kidney.....	bushel	4	0	4	6	0
Cauliflowers.....	dozen	0	0	3	6	0	Radishes..... doz. bunches	1	6	2	0	0	
Celery.....	bundle	1	6	2	0	0	Rhubarb.....	bundle	0	4	0	6	0
Coleworts..... doz. bunches	2	0	4	0	0	0	Salsafy.....	bundle	1	0	0	0	0
Cucumbers.....	each	0	6	1	0	0	Scorzonera.....	bundle	1	6	0	0	0
Endive.....	dozen	1	0	2	0	0	Seakale.....	basket	3	0	3	8	0
Fennel.....	bunch	0	3	0	0	0	Shallots.....	½ lb.	0	3	0	0	0
Garlic.....	½ lb.	0	6	0	0	0	Spinach.....	bushel	3	0	0	0	0
Herbs.....	bunch	0	2	0	0	0	Turnips.....	bunch	0	4	0	0	0
Leeks.....	bunch	0	3	0	4	0	Vegetable Marrows	each	0	0	0	0	0



#### POULTRY AND PIGEON CHRONICLE.

#### THE UTILISATION OF WASTE LAND.

(Continued from page 263.)

LET us compare the advantages of planting after a well-made fallow and that of digging holes in a hard and untilled surface. In the former case the trees would root quickly and spread under ground without difficulty during the whole period, until they may be felled whilst young or left for maturity as timber. In the latter case, however, when planted in such strong land, with merely holes dug to take the trees, it will prove the grave of the far greater portion, and any which may survive never can make a profitable growth, nor can the untilled surface be horse or hand-hoed, so as to keep the land clear and free from weeds. We therefore assume that the cost of fallowing is money well expended, and without it the land had better be allowed to continue in the same wasteful state as before planting had been decided upon. As it may be desirable in the opinion of some landowners to plant Firs only for a crop of ripe timber, we beg the reader to refer to the article upon this subject in this Journal dated the 6th of May, 1880. In following up the subject of quick returns, however, we will refer to the close system of planting as before stated, in which case the small ridges we have named of 10 feet wide will



be just suitable for bearing four lines on each ridge. In each alternate row every other plant is spoken of as being planted with Ash; but as the growth of Ash would be slow and unsuited to heavy land we must find a substitute if it is intended to retain a plant of underwood for future profit; we therefore consider that Sweet Chestnut would be well to take the place of Ash on strong soils, especially as it is easy to obtain the plants from the nurserymen. On the other hand, we have a strong idea that one or more sorts of wood well adapted for quick growth and valuable purposes may be made available instead of Ash or Chestnut trees. They would be more profitable, although it would be far more difficult to obtain plants unless they were raised direct from seed, as the trees we refer to are not kept in stock by nurserymen except for sale as ornamental objects, and in consequence could not be purchased in a wholesale way, or in quantity for extensive planting, except at a price which would be prohibitory for profitable growth. We shall, however, in continuing the subject refer to this matter at some length before concluding our observations. After the Firs and underwood trees are set upon small ridges they will with deep furrows throw off the water quickly. Whether the land has been previously pipe-drained or not, cross open water carriers will be required to take the water away quickly, and these should be 30 inches wide at top, 18 inches wide at bottom, and 30 inches deep. This will be necessary under any circumstances, because pipe drains will not act long in woodland.

We have previously stated that we should refer to sorts of trees capable of being grown to produce either timber or underwood upon such soils as may be too strong for the common Ash to flourish upon as they do upon light and poor soils. The first tree we will notice is not used to our knowledge in plantations generally, either for growth as timber or underwood. We, however, very well remember when the Locust Tree of America was introduced to public notice by the celebrated William Cobbett, and was recommended by him in his "Weekly Register" in 1823. As he had a great many of these plants for sale at that time we shall notice some of his statements as to the value of the timber and wood, the purposes for which it is adapted, and the mode of raising and planting the trees.

The Locust Tree of America is *Robinia Pseud-acacia* or Bastard Acacia, sometimes called Thorn Acacia, and it is found in most nurserymen's catalogues under one of these names. Up to the present time we suppose it has only been grown as a shrub or tree for ornamental purposes. As, however, we have reason to rely upon the statements made by Mr. Cobbett and other writers in America who have recommended its being extensively planted in England, we shall make some quotations from the "Register" dated 1823. After stating that he had a hundred thousand Locust plants for sale at a price named he says, "They require a strong loamy soil; the land should be moved at least 18 inches in depth, keeping the best soil on the surface, and in planting for profitable growth the plants should be set at 4 feet apart each way." He further says that his "first sowing seeds of the Locust Tree was in 1806. Some of the plants raised were set out in 1807, 1809, and 1813, close by the village of Botley in Hampshire; and those trees planted in April, 1807, after seventeen years' growth were from 38 to 42 feet in height, and were from 60 to 68 inches round at the base. Those planted in 1809 were in the same proportions of growth at fourteen years, whereas those trees planted in 1813 and raised from seed sown in 1812 at eleven years' growth varied from 37 to 40 feet in height, and from 32 to 38 inches round at the base." When these trees were cut they were seen by a friend of ours, who last week told us that they cut up remarkably solid, being all spine, without any sap as is seen in our native Oak wood, and the wood of a light and bright brown colour, something like Box wood. The height and girth of these trees shows at once the extraordinary growth which they will make when properly planted

and cared for, and it seems that at any age or size the wood is of the same enduring quality—a matter of immense importance in estimating the value of underwood; and it is stated that Locust wood for hop poles would last for a long period without requiring fresh pointing; in fact, Mr. Cobbett says the wood is very durable.

Of the writers in America the first was Judge Mitchell from Long Island, who states that posts to a fence taken up after standing twenty-eight years were as sound as ever in parts underground as well as above. Mr. Henry Lawrence certifies that a post which he knew for forty-four years was perfectly sound, both above and below the level ground, when removed, and that he remembers hearing his father say that it was an old post when he knew it, and it must have been there for upwards of eighty years. Mr. Daniel Smith certifies that a post placed 2 feet under ground by his ancestors in the year 1709 was examined in October, 1820, and found to be without the least decay; this information was obtained by Dr. Peter Townsend of Smith's Town, Long Island. We have abundance of evidence as to the durability of this timber, and also as to its rapidity of growth and its being suitable for every purpose to which wood is applied, including hop poles, hurdle gates, pail fencing, boarding, and for all sorts of posts, doors, floors, and sills, &c., which may be required on the farm premises or elsewhere. We have nothing growing in this country as timber or underwood which can furnish such value as this for all and every purpose at any age of the wood—not even the heart or spine of the best Oak comes near it in endurance; and as regards early maturity, we have nothing known yielding the same quality in so short a period. As we are quite unable to disprove the evidence here given we cannot do otherwise than to recommend the growth of the tree in preference to Ash or any other description of wood. It must, however, be raised from seed for the special purposes of planting, because it cannot be obtained from the nurserymen except at prices which would make the charges of planting objectionable in every respect.

We will now take up the question of management after planting. We do not, however, insist upon the method of growing it in conjunction with Larch Fir, although no doubt it may be done with advantage. We should prefer to make a plantation entirely of Locust Trees, and when planted at 4 feet apart each way on a fallow and prepared surface as previously described, with proper horse and hand hoeing, they would make the most rapid progress. It is stated that after the trees have taken well they should be cut down close for producing underwood, as two stems may be left for the growth of poles to be cut early; but for trees a single stem only should be left. It is, however, confidently stated by Mr. Cobbett, and we hope this will be tested, that a plant cut close in the second year will become of much larger dimensions and active growth at the end of any given number of years than that which had grown direct from seed without cutting or mutilation in any way. We have seen various other kinds of trees recommended for planting, such as the White Oak (*Quercus alba*); however, when we have compared them with the American Locust we decide immediately in favour of the latter. No doubt this underwood would be very valuable, because if we grow two hop poles to each tree fit for use and sale in seven years the number of plants per acre at 4 feet apart each way would be 2720, so that by taking two poles from each plant we should have for sale 5440 poles, worth, compared with Ash poles, at least 6s. each; we have only to deduct about 6 per cent. for failures and crooked poles (the latter being fit for trunnels, used in ship-building), leaving not only a large return, but a quick one.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—The sowing of Barley, Oats and drege, and the planting of Potatoes and Cabbages, have been continued lately without much hindrance; at the same time we must not neglect to consider the importance of sowing the Lent corn with Clover and grass seeds, and the young Wheat also where it has been sown after Potatoes, Mangolds, or early Turnips: in the latter case we have always succeeded with broad Clover. The chief point to be observed is that the seeds shall be alternated, for when the land is cultivated either under a four or five-course rotation, it is necessary to avoid sowing the same kinds of seeds as were grown in the previous course; for instance, if broad Clover and Alsike with some Saintfoin mixed were grown before, white Clover and yellow Suckling should now be sown except when the land is intended for two or three years' lea, the seeds then required being white Clover 5 lbs. per acre, Alsike 5 lbs., Timothy Grass 6 lbs., Cocksfoot 6 lbs., and Pacey's Perennial Rye Grass 10 lbs. By either of these changes broad Clover will not occur oftener than once in ten or twelve years. It is very necessary to recollect that broad Clover fails very frequently when the land has borne a similar crop in the former course, and it is a common observation amongst farmers that the land has become Clover-sick. This is an expressive term, but it by no means indicates the cause of failure, which has recently been



attributed to the fact of a full crop of broad Clover having previously absorbed a large portion of the manurial elements in the soil necessary for the production of the crop, and this accounts for the failures in succession that are often seen. Upon the hill farms, and those without any pastures or water meadows, where a stock of breeding sheep is kept, some land may have Italian Rye Grass sown in the Wheat, for although Mangolds may be considered specially adapted to prevent scarcity, yet Italian Rye Grass and Rye itself sown in the autumn are first-rate provision when the spring food for sheep and cattle is short. The land where Rye Grass has been fed off may be ploughed, pressed, and sown with Rape or Thousand-headed Kale; that which has been occupied with Rye fed off in conjunction with Italian Grass will be suitable for Mangolds or Swedes after once ploughing. If, however, it is foul with couch the green crops must be superseded by a naked fallow before sowing the seeds for root crops.

**Hand Labour.**—Men and women are now employed in timber cutting and stripping off bark from the Oaks, the women setting up the bark. All other timber, such as Elm and Ash, have been cut during the winter, especially for the purposes of repairs; it is also advised by many, and we approve it, that the Oaks when required as timber for the home farm should be cut in the winter months before the sap has risen, and consequently without taking off the bark. Men are now much required in connection with the various kinds of farm work going on, such as preparing manure for Mangolds and the late kinds of Potatoes. The women may be employed in cutting the Potato sets, for we agree that they should be cut before setting, so that not more than two eyes are left on each set, unless in the case of some sorts, especially the early ones, which have but few eyes. In those sorts, however, which show a large number of eyes the planting of small Potatoes are objectionable, because they produce numerous stems forming quite a bunch of leaves. We prefer to have one or two strong stems only.

**Live Stock.**—The dairy cows should now go out on the pastures at daytime chiefly for airing, for as yet there is but little grass on the best pastures, but returning to the stalls or courts at night, and there receiving their allowance of artificial foods, chaff, and roots mixed, and if with malt to make it attractive as well as forcing the milk so much the better. The home farmer may now with advantage have his middling or inferior Barley malted at a cost of about 4s. 6d. or 5s. per quarter, and by the increase in bulk as well as quality secure an article for various purposes of increased value as compared with barley meal. We must caution the farmer against allowing dairy cows or store cattle to feed on any pastures which are intended to be laid up and cut for hay, as all such should be laid up and rolled not later than the first week in April. Swine require particular attention, for it is not customary to arrange for the sows to farrow about March or April. The young pigs will then have the advantage of favourable weather, but it is dangerous to allow pigs under twelve weeks old to eat Mangolds promiscuously in the yards whilst being kept only in store condition, as they often die unexpectedly, and are found to have the lungs decayed. Of course if a fair allowance of meal is given and mixed with pulped Mangolds they will do very well. The closing of markets in various districts has been a great source of inconvenience to the home farmer in the sale of his stock, whether in a fat state or merely in store condition. In most districts, however, the foot-and-mouth disease has nearly disappeared, although this disorder seldom occasions death, and rarely lasts beyond a few weeks in the herd, yet the future loss and disturbance of health of the animals in consequence never can be calculated, and is often very serious; it is therefore necessary that it should be stamped out by isolation as quickly as possible. The manner in which the sheep are attacked and the estimated condition of the animals is often very unsatisfactory, because the symptoms of foot-rot attended with internal fever is often mistaken for the foot-and-mouth disease.

### VARIETIES.

**AGRICULTURAL PROSPECTS.**—The cold days and frosty nights of the past week have not improved the appearance of growing crops of any kind, and all vegetation remains very backward. The open weather, however, has enabled a great deal of work to be done on the land, and Barley sowing has been pushed forward very rapidly on light soils and loams. On the heavy lands the surface has been getting very hard during the last few days, and, with the exception of fallows made before Christmas, the clays are very troublesome to work, the cold wet clay turning to brick under the drying winds. A warm shower or two would now do great good to the land and all the crops upon it, for nothing seems to grow; in fact everything seems to be getting smaller day by day. Winter Beans make but a poor showing, and the average of spring Beans planted must be a very small one. Peas, too, have gone in on a small acreage, because the season was late and other work was pressing. Keep of all kinds is now very scarce, and stock are being turned out prematurely in many districts: this is bad policy in every way. Store cattle are generally in rather low condition in England and Scotland, but in

Ireland they have wintered well and come very fresh to the spring fairs. Sheep are not doing very well, as they are mostly on short keep, and the lambs do not get as much from the ewes as they require. In fact, the liberal use of feeding-stuffs has again become a necessity which may not be neglected with impunity.—(*Mark Lane Express.*)

— **THE ADULTERATION OF DAIRY PRODUCE.**—We are glad to observe that attention is being directed to the alarming extent to which the adulteration of Irish butter is being practised. Adulteration of all substances is not only a dishonest, but it may also be a dangerous practice, and those who carry it on should be subjected to severe punishment. We regret that latterly there has been only too good reason to believe that the adulteration of butter by oleomargarine or butterine is being perpetrated extensively in different parts of Ireland, more especially in the larger towns. More than one public body throughout the country have petitioned Parliament on the subject; while at a meeting of the Council of the Royal Agricultural Society of Ireland last week, the Rev. Canon Bagot referred to the matter with the view of pressing it upon the attention of the authorities in Dublin.—(*Irish Farmer's Gazette.*)

— **OLEOMARGARINE.**—Much is heard of this substance, and the following, which has been published relative to it, may not be devoid of interest:—"Oleomargarine, which is derived from beef caul fat, the average yield being 35 per cent. of the fat used. This product is used in America both for the adulteration of butter and for the manufacture of butterine or counterfeit butter. It is also largely exported to the United Kingdom and to Holland for the purpose of adulterating butter in those countries. 2, Suene, made at Chicago, and consisting of 50 per cent. of hog's lard, and 50 per cent. of western dairy butter. 3, Butter on a soapstone basis, which consists of a large admixture of the mineral known as 'soapstone,' which is ground to an impalpable powder, and is used as filling to make weight in flour, sugar, soap, paper, and many other articles, as well as in butter and cheese. The Food Adulteration Act is not sufficient to meet the requirements of this new traffic, or, at all events, its provisions are habitually evaded."

— **THE USES OF MAIZE.**—During his Budget speech last Monday night Mr. Gladstone spoke as follows on this subject:—"I wish to give a little detail about the case of Maize, because it is an interesting illustration of the mode in which, where freedom is given to industry, private enterprise discovers methods of making that freedom gainful. Maize was considered somewhat hard for brewing, and it was also found, when the experiment was seriously made, that it contained too much oil, which was a very grave objection. But this further discovery was made, that this excess of oil was not diffused through the general body of the grain, but lay entirely in that which is called the germ; consequently the wit of man thus provoked and stimulated extracted the germ from the grain and turned it to its proper account—viz., that of making oil, which we can burn in our lamps. The Maize, relieved of the excess of oil and now made suitable for brewing, was applied for that purpose; and I understand that the result is not only satisfactory as regards the beer which proceeds from it, but likewise it is satisfactory in this point, that the residue is found to be even more available and decidedly more profitable for feeding cattle than the residue formerly obtained from Barley."



### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 203.)

#### GENERAL PRINCIPLES.

THERE are certain general rules or principles of breeding which have been ascertained to be correct by the experience of fanciers. A knowledge of these is indispensable to the beginner. During the formation of the strain these rules have to give way in some degree to the paramount object in view—namely, the establishing of a family, all the individuals of which bear a strong resemblance to a common ancestor, and are prepotent as to the points of that

ancestor. Even at this early stage these principles may frequently be applied, and later on they are all-important. Chief amongst them are those which relate to the influence of each parent over the qualities of progeny. First, as to size. Here it is universally admitted that the influence of the mother predominates. It is most important in breeding for size that the hen should be large and of a large strain. We do not for a moment suggest that a very undersized cock or cockerel should be bred from, but a cock of medium size mated with a large hen will produce a far greater proportion of large chickens than will result from the mating of a medium-sized hen with a large male bird. A very small bird of either sex should not be bred from unless the smallness has been occasioned by late hatching or under-feeding, and the bird is of special value for some other points. If the small bird be a very late-hatched one, and its blood is of special value, it had better be kept over until its second year before being used in the breeding yard. In most breeds the progeny of a bird which is small only on account of one of the above reasons will recover the lost size, but in such cases special care must be taken to give the chicks every advantage of early hatching and liberal feeding. Just as on the one hand, small size occasioned by what may be called accidental circumstances may be disregarded, so on the other hand extra large size occasioned by forcing the growth of the birds with much meat or other such food is of no advantage in the breeding pen. On the contrary, it has been found that these very large birds are frequently unproductive, or produce only weakly and degenerate offspring. Extra large size which has been produced by natural means is, where size is a point of merit, a distinct gain, and can if desired be perpetuated by in-breeding in the same manner as any other point.

Although the hen has the most influence over the size of the progeny, the influence of the male bird is also material, and it is much better where it can be managed to breed only from large birds of each sex, but if it is necessary to breed from a small bird on one side the above rule must be followed. The breeder should never mate undersized birds, no matter how produced, together, as this cannot fail to lead to a deterioration in the size of the strain.

When breeding, as in the case of Bantams and some varieties of Pigeons, for smallness, the converse plan must be adopted, and special care taken that the hen at least is as small as possible.

In general structure and shape the hen has also the most influence, but it must be remembered that this influence does not affect the cockerels amongst the progeny to such an extent as the pullets. The chickens of each sex show a tendency to inherit the properties of their ancestors of that sex, and although this tendency can be modified by the influence of the qualities of the other sex, still too much must not be expected. We may illustrate our meaning thus:—A Dorking breeder finds that his strain has a tendency to throw cockerels which are deficient in depth of breast. By selecting hens which are specially good in this respect to breed from he will probably find that nearly all the pullets inherit the form of their mothers and have deep breasts, but that the cockerels are affected to a much less extent, and that many of them are as shallow-breasted as their father was. Some few will show a marked improvement, but that is as much as can be expected from the process in the first instance. It is only by its repetition several times that the general character of the cockerels can be influenced.

The statement that the female parent has most influence in these points may be illustrated by supposing the Dorking breeder to attempt to remedy the defect indicated by merely breeding from a full-breasted cock with hens somewhat deficient in breast. Here it would be found that nearly all the chickens, as well cockerels as pullets, were deficient in breast, and if the hens were very bad in this respect the probability of getting a really good chicken of either sex would be slight indeed.

In regard to points other than size, shape, and structure, the male parent has the most influence, and nothing short of phenomenal excellence in any point in the hen can be relied upon to counteract in any degree a great defect in that point in her mate. Thus a cock with a very defective comb should not be used in the breeding pen if it can possibly be avoided. The chance of obtaining even one chicken with a perfect comb from such a parent would be infinitesimal, and both cockerels and pullets would be alike defective. A hen with an imperfect comb may, however, be bred from with a fair prospect of good results provided the cock mated with her be very good in this respect. Similar results will be obtained in regard to other fancy points, such as earlobe, colour, leg feather, and many others which might be mentioned.

The breeder must never lose sight of the fact that the issue of any given alliance take as much after their more remote ancestors as after their parents, and that this may modify very considerably

the results of the alliance. Regard must therefore be had in mating a pair of birds not only to their personal qualities but to those of their ancestors, and to the greater or less degree in which any particular quality has become developed and settled. Thus a bird which is defective in any particular point in which the strain generally excel may with safety be made use of where a precisely similar bird whose family were equally defective would have to be rejected.

Again, a bird which is of great merit in a point in which his ancestors were defective can only be expected to produce a very slight improvement in his offspring until in-and-in-breeding has been resorted to.

This brings us to a matter of some importance which cannot be too strongly insisted upon—namely, the general rule, that a bird defective in any material point should never be in-bred to. Such birds may be used with advantage for the purpose of strengthening a strain in points in which it is deficient, and they are of exceptional merit, but having served that purpose should not be used again. The converse of this is equally important—namely, that a bird which is of fair general excellence and of great excellence in any one point should be used as largely as possible in order to fix the good feature as a characteristic of the strain. It is only by thus seizing upon and breeding-in to what we may call accidental perfections, that the various breeds have reached their present respective high standards, and it is only by similar processes that any improvement can now be effected.

#### CROSS-BRED POULTRY.

"I AM a trifle puzzled with one sentence among the admirable remarks of your correspondent 'C.' upon cross-bred poultry. He mentions that two objects should be aimed at with cross breeds—viz., to produce good table fowls and good layers, and remarks that in the latter respect pullets 'as a rule' follow their mothers. If 'C.' can point out a single instance in which in this respect a pullet has followed its father it will be to me quite a new sensation.—J. S. D."

The above was forwarded to "C.," who replied as follows:—"We really cannot quite comprehend whether 'J. S. D.' seriously expects an answer to his question, or simply wishes to enliven our columns with his wit. Certainly his sense of humour is greater than his appreciation of logic. We repeat that 'as a rule pullets follow their mothers.' We drew no contrast between the influence of mothers and fathers; we never mentioned the latter parents. It is possible for pullets, as good or bad layers, to be like their mothers, or not to be like them. What we assert is, that as a rule they are like them. It strikes us that 'J. S. D.' in trying to convict us of an Hibernicism has been guilty of one himself!—C."

[We insert the above question with "C.'s" answer as an example of the curious way in which readers will occasionally misinterpret words which are perfectly clear in their meaning. While upon the subject we may, however, point out to "J. S. D." that it is of importance in breeding for laying qualities that the father as well as the mother should be bred from a good laying strain. A pullet may follow her female ancestors on the father's side.—EDS.]

#### RECOLLECTIONS OF DORKINGS.

My letter on "The Modern Dorking" has brought me several private inquiries, chiefly as to the colour of this breed before so much uniformity in it was required as is now generally thought necessary. I will therefore, if I may, supplement my former observations with a few recollections which occur to me of the subdivision of the coloured classes, and of the changes in fashion as to colour, that have taken place since I have been actively interested in the breed. Novices are often puzzled with the term "Coloured," and naturally so. It originally signified other than White. "Coloured" Dorkings might be, and certainly at first were, of many colours; then a subdivision was made between the light-coloured birds, which were called Silver-Greys, and the dark-coloured, which were often and still are somewhat incorrectly called "Coloured," and by more precise fanciers "Dark Dorkings."

When first I remember the Birmingham Show (in 1865, I think), the subdivision had not taken place formally, though some people had begun to breed carefully for the silver colour, and birds of it had long been known as "Lord Hill's breed." Mrs. Arbuthnot, writing about 1866, speaks of the subvariety as well established yet ignored by some judges. I think it had special classes in 1868 at Birmingham. From the time that the lighter birds were bred for feather there has always been, in my humble opinion, a

tendency to breed the darker ones also for feather, and to keep them darker than any originally were for the sake of contrast with the Silvers. As I said before, I cannot help admiring the beauty of the rich dark brown hens, but I much regret that that colour should be considered a *sine qua non* for a first-class winner. Why a much greater diversity of colour in the cocks of the dark variety should be tolerated than in the hens I never have been able to discover. Cocks are occasionally found in the prize pen which might do duty as Silver-Greys, and others which are almost black; but to please some great judges the hens must be all of a particular brown, and of late have been required to have black neck hackles. This last is, I venture to think, a particularly unnecessary new point, for some of the prettiest and finest hens in shape, and of rich dark colour too, will have straw markings on the neck hackle.

It may interest some of the inquirers if I briefly describe some of the various Dorkings which I remember in past years at the Birmingham shows and elsewhere. There was little difference in the cocks from those seen now. Some had more and some less dark marking in their hackles; some had brown on their upper wing coverts and back, and some silver or straw colour. From the same cocks pullets of various shades were then bred, and may still be bred, following as they do the colour of their mothers. The hens varied much more in colour than they do now, and it is of them that I will attempt to give a description.

1, There were hens of a shade approaching Silver-Greys, but with much darker and more cloudy neck hackles, and a browner and more indistinct tinge all over the body. I cannot say that I admired them, but they often were very large. I bought one when quite a novice from Mrs. Arkwright's yard, and a magnificent bird she was.

2, The commonest colour, I think, was what I described in my last letter as much lighter than the now fashionable brown with darker edging or spangling to most of the feathers. Such even now sometimes win.

3, A very beautiful type of hen was not uncommon, which I remember hearing called "Dark Silvers." Their general colour was very dark brown with a white shaft to each feather, their tails almost black, but their breast of a pale salmon colour, and their neck hackle silver and black. They were very handsome and striking, but are, I fancy, birds of the past.

4, Really brown hens were common fifteen years ago, but the brown was more rusty and less uniform than the favourite brown of to-day. The first Dorkings I ever possessed, hatched from eggs bought of Mr. Baily of Mount Street, were of this type; they were square, and short-legged, and were not large hens. I subsequently bred pullets from them like their mothers, and also light pullets from light hens (No. 1) by the same cock.

It may be asked, What is the use of recalling what Dorkings have been when we have so beautiful and magnificent a bird as the best Dark Dorking of to-day? My object is to show that a few years ago there was not required so great a uniformity of colour in Dark Dorkings as at present. All fanciers know to their cost how many birds fall short of the colour standard; and what I would advocate is that an otherwise fine bird should never be rejected for too rusty a wing or too light a hackle, or indeed for any colour point which did not clearly show impurity of race. Some will say that a strain which shows much diversity of colour cannot possibly be a pure one. This seems to me by no means self-evident. There are many distinct breeds of horses and other animals which show great variety of colour; and given in a race of fowls several distinctive characteristics of form—such as comb, feet, thickness of body, and roundness of breast—I cannot understand why these should not be sufficient evidence of its genuineness, and some diversity of plumage be permissible. The general form and characteristics of the Dorking are most ancient. Modern breeders may laugh at the supposition that they were imported into England by the Roman invader, because the description of the best fowls given by the Latin naturalists is certainly like them. This, however, I can testify—that on the walls of Pompeii I have seen in mosaic fowls with all their characteristics; where, by-the-by, are also to be seen many of our fancy Ducks—conspicuously the Mandarin and Shell-drake. A race whose form has essentially been preserved through such ages can hardly be one the purity of which should be judged by a tinge of colour.—O. E. CRESSWELL.

P.S.—Since writing the above lines I have read with much interest the letters which have followed my former communication on the "Modern Dorking." Every word written by a fancier of such long standing as Mr. Harrison Weir, and who has, it seems, had such exceptional opportunities of observing the Dorking fowl, is worthy of careful consideration. I am therefore anxious at once to explain myself on one or two points where he has perhaps misapprehended my meaning.

1, Mr. Harrison Weir says, "I think Mr. Cresswell is scarcely within the mark when he writes somewhat slightly of those fanciers who from various causes do not exhibit." I can find no words of mine which contain such a slight, but if any seem to do so I beg most emphatically to disclaim all intention of slighting such fanciers. On the contrary, I have the greatest respect for them, and have repeatedly written to the effect that I believe there are many of the truest and best fanciers who never exhibit; and I added at one time that if poultry shows were not more jealously guarded from malpractices, that I believe most true fanciers would cease to exhibit.

2, Mr. Harrison Weir says that I am "somewhat wrong, though possibly right in the main," about Dorkings having been formerly more judged by weight than now. I base my opinion solely on facts. In former days nearly everybody who wanted a Dorking from my yards inquired the exact weights of birds, now such a question is hardly ever asked; but, what is more to the point, for six or seven years I have never heard of such a thing as Dorkings being put into the scales in judging. In my earlier days of poultry fancying I have several times seen this done.

3, I quite agree with Mr. Weir that large bones are objectionable in a table fowl. I always look for small-boned Dorkings, and have frequently written to the effect that large bones are generally weak. I can, however, see no reason why a large fowl should not have bones small in proportion to its size. I agree, too, with Mr. Weir that a 4-lb. chicken is, as a chicken, better for eating than an 8-lb. one, but the advantage which I find in the modern Dorking is that one can grow the 4-lb. chicken in three months instead of waiting six months for it. It is also convenient at times to have 8-lb. and even larger fowls. Turkeys are troublesome to rear and to accommodate. I find a large and well-fed Dorking fowl if stuffed like a Turkey as nearly as possible its equal on the table. Large Dorkings are so dressed in my house, and I have many times heard visitors observe that they could not tell them from Turkey poult.

In answer to Mr. Smyth's query whether I consider spots on the legs of Dorkings worse than dark feet, I can only say that I consider them both equally blemishes, though spots are more likely to escape the notice of a judge than a general dark tinge.—O. E. C.

[We find by a reference to our former volumes that the Silver-Greys had special classes at Birmingham as early as 1862. These classes, however, were omitted in subsequent years down to 1866, when the Silver-Greys definitely took the position they have since maintained.—EDS.]

## HOMING.

THERE has been much that is interesting written on the powers of the Carrier Pigeon—the length and rapidity of its flights and the modes of training it, as also speculations as to its guide for its homeward course; these latter point to the theory of this bird flying by sight alone. I find that the Rev. E. S. Dixon, in his very interesting work "The Dovecote and Aviary," takes this view. I always hesitate to place my opinion against that of such men of letters as Mr. Dixon, still on this point—the guide of the Carrier on the wing—I beg most respectfully to differ from him. It is pretty well known that I am not an Antwerp Carrier fancier, and do not encourage the Antwerp as a bird that ought to be in the fancy, for several reasons which I shall not discuss at present; but I keep Antwerps for two purposes—first as feeders for my young Pouters, and second for table use. For both these purposes I find them most suitable.

First, then, as to the power of wing possessed by this bird. So far as my personal experience goes I do not think this point is yet fully developed in this country. The plain narrative of what I have experienced may be interesting, and I hope it will not weary your readers. Several years ago when in Manchester I called on the late Mr. W. Millward, a bird dealer, from whom I got all my Belgian Canaries. He had lately arrived from the continent, and brought with him a stock of Antwerp Carriers, which he then found to be most unprofitable. Not having previously seen any birds which I could be sure had been imported I purchased three pairs. The stock consisted of mostly Blues, some Mealies, and some nameless colours; but all were self-coloured, and all showing a cross of the Owl, and having a slight division of the feathers on the breast. Some of them had the breast feathers slightly turned, indicating the frill. They were wild as newly caught Hawks, and strong enough to carry before them a pane of window glass, as indeed one of them did when in my possession. After much care and caution I got them to take to their new home, and found them to be hardy birds. They bred almost the whole year round; indeed, I was never without some few young ones. During the summer season, when there was early light, they took two flights per day—the cocks and unoccupied hens at about 7 A.M., and the hens and unoccupied cocks about 1 P.M. The flock invariably flew southward, and were away for about an hour and a half each time. I have seen them fully ten miles south still holding in that direction. When first noticed on their return they were always at a very great height, but if it were blowing hard (the



weather seems of little consequence to them) they often returned from the northward, having no doubt been carried to the east or west beyond their home.

Three years had passed when a friend came on a visit from Ledbury, Herefordshire. This gentleman saw my Antwerps, and expressed a wish for a pair or two to breed for table use. After he had left for home I caught three pairs, all bred in my Antwerp loft. They were put into a box (not a basket or cage), and addressed to a mutual friend in Manchester, as they could not reach Ledbury in one day from Glasgow. They reached Manchester in the evening, were re-booked for Ledbury next morning, and reached their destination that evening, but till then were not taken out of the box in which I had placed them. Before sending the birds away I had pulled the flight feathers out of the right wing of each bird, and my instructions were, "Keep them confined with such a netting as will let them see the locality till they have each had a nest of young ones, and are sitting upon their second eggs." Those instructions were rigidly adhered to. One night when they were sitting on their second eggs the netting was removed, and the next morning the birds found themselves at liberty. A man was set to watch them. The cocks took sundry flights, and by-and-by relieved their mates who had been occupied in incubation. The hens came out and at once took wing. The date I cannot now give precisely, let us call it the 18th of July. On the morning of the 20th I had a letter from my friend dated the 19th saying, "The birds were let out yesterday morning as you instructed, but two of them have not returned; I am afraid they are lost." While I was in the act of reading my friend's letter, my man who attends to the birds came into my office saying, "I think two of Mr. —'s birds are back." Scarcely believing him I went into the yard, and there certainly were two of the hens I had sent to Ledbury.

Now, I can tell to a mile the distance between Glasgow and Ledbury, Herefordshire, by railway, but I will let your readers measure the distance as the crow flies, and decide whether or not this was a very long flight. Mark, first, that these birds had never been trained; second, that they had never been in anyone's hands till caught by me, when I pulled the flight feathers from one wing of each bird. The birds left their cote at Ledbury about 10 or 11 A.M. on the 18th, and as I did not know what day or week they were to be set at liberty, of course I did not expect them. Indeed, I never expected they would return to Glasgow on the wing. For all I know they may have reached on the evening of the 18th, or during the day of the 19th.

Two months after this I gave to a friend in Paisley a pair of young ones; they had only been two days outside the loft, and had never left it beyond a hundred yards. They were taken away squeakers and confined with a netting in front for three weeks, when let out they were at their birthplace in ten or twelve minutes. It is only seven miles to Paisley, but these birds had never been flown.

Secondly, What is the compass by which the Carrier is enabled to steer his homeward course? "By landmarks," it is commonly said. We know that all Pigeons have a homing propensity to some degree. Purchase a pair of young common birds, confine them a reasonable time, and give them liberty. After trimming their feathers they start on a flight, which is usually composed of one, two, or three circles, and as a rule, unless a strong wind carries them aside, they will alight on the highest attainable point above the place from which they started. Should they be unable to reach their new abode from fear, wind, or other cause, you will at night find them roosting on some window-sill, ledge, or house top nearly above the place from which they had started. Should they be old birds they will either be off trying to find their old home, or from greater power of wing and from more experience having less fear, they will be found at night comfortably roosting in their new home. It is the nature of the Pigeon to "fly to their windows." There are no known landmarks in such cases. The birds no sooner reach the outside of the building than all is strange; still they return to the spot they started from by some very wonderful instinct, whether that spot be in the city or in the country. It is not so, however, with the true Carrier set free in a strange or unknown place. The whole language of his flight and powers is—Home!

"Where the free of soul were nursed  
Is the place that I love best."

I am told that the training of this bird is managed in this wise: He is first taken ten miles away and set at liberty, then twenty miles, and so on in the same direction. In some parts of England three or four towns or villages can be seen from one point, and it would require the powers of reason to distinguish one from the other. I do not suppose that the Carrier is endowed with reason. When the Carrier is let loose, say a few miles from home, he immediately rises in a spiral flight, the object of which is not to survey the strange locality, but to reach a certain altitude. When this has been attained he shoots off in the direction of home. It may be a few points to the right or to the left, but the rule is he holds on in the homeward direction. I have seen some birds go off in the contrary direction till nearly out of sight, when they will suddenly turn and retrace their way as if drawn by some unseen magnet. Now, if the bird does not take time to make himself acquainted with the first point, how can it be a landmark for time to come? The same thing applies to all the other points to which he is taken. For the sake of argument let us allow that landmarks are indispensable. What of the landmarks when the bird is carried in the course of his flight by strong winds

many miles to the right or left, or to such a distance that even the eye of the Carrier cannot reach? Were these birds to fly above our highways or railways we could understand the assertion that landmarks were indispensable; but when their path is, as it were, in the sea, ever varying, never twice the same, I do not think landmarks are of any consequence.

I have noticed Carriers returning from the northward when they should have come from the south. I account for this by strong winds having carried them beyond their home to the right or left, and I think this fact alone sets aside the question of landmarks. The Rev. Mr. Dixon, to whom I have alluded, seems to think that high grounds intervening are apt to make the birds lose their way. Now my birds that came from Herefordshire must have surmounted many very high hills—namely, the Westmoreland hills, unless, indeed, they were carried by high winds, east or west, nearer to the coast—still they reached the place of their birth safe and sound. How can this be accounted for? Although I hold the old writers on ornithology in the highest respect, still I can see that too many of them are mere copyists. One touches a possible chord, and many others follow by striking the same strings. There is not that independence of thought which this theme deserves.

I am told that on some parts of the continent keepers of the Carrier fly their birds during the night. This is worth inquiring into. If it is a fact—which I believe it to be—then the idea of landmarks is out of the question. But it will be asked, How do I account for the wonderful performances of the Carrier without the aid of landmarks? My reply is, that I believe it to be all embraced in the four lines of the old poet—

"I hear a voice you cannot hear,  
Which says I must not stay;  
I see a hand you cannot see,  
Which beckons me away."

As to training, I believe the whole use of it amounts to giving the bird confidence and strength of wing, and I believe he will come from any other direction with the same precision as the one to which he has been trained.

This subject seems to me to be one of vast importance both scientifically and commercially, and to deserve the attention not only of all Pigeon fanciers but also of scientific men. I invite all your readers to give their experience and ideas upon it. Surely it possesses an interest far above any other point connected with our pastime.—JAMES HUIE.

## OUR LETTER BOX.

**Profitable Ducks (B. E.).**—Unless you have means of separating them you cannot keep more than one breed of Ducks pure. Aylesburys, Rouens, and Pekins are the three most suitable sorts. If you intend to rear ducklings for the early spring markets, the first-named will be best. Rouens are also good table birds, but do not come in so early. Pekins are perhaps the best layers of all, and although hardly so weighty on the average as the others, are easily reared, and make good table birds. If you mean to sell eggs for hatching, the Pekins will probably pay best, as they are a comparatively new sort and are fashionable at present. As regards egg-production much depends upon the laying qualities of the strain, so you should be careful to obtain information on this point, if possible, before purchasing your stock.

**Fowls Trespassing (F. Wood).**—It would be illegal to shoot them. Your neighbour is bound to keep his fowls from trespassing; send him a written notice that if he do not restrain them you will sue him in the County Court for the amount of damage they do. Galvanised-iron netting, 2 feet high, without any bar at the top, placed above the wall would prevent the intrusion.

## METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
		Baromet. ter at 32° and Sea Level	Hygromet- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperatnre.	
1881.			Dry.	Wet.			Max.	Min.	In sun.	On grass.
March.										
April.										
Sun. 27		29.967	37.8	33.5	N.E.	39.4	45.7	26.6	89.0	20.8
Mon. 28		29.906	38.3	34.4	N.E.	39.0	48.0	28.6	98.9	24.3
Tues. 29		29.750	39.4	35.6	N.E.	39.1	55.3	27.6	101.4	22.9
Wed. 30		30.024	41.0	36.3	N.	39.8	49.3	25.4	107.6	22.3
Thurs. 31		30.022	38.7	34.6	N.E.	39.7	47.6	32.3	100.7	27.2
Friday 1		29.791	43.8	40.2	N.E.	41.0	55.3	33.2	105.6	25.6
Satur. 2		29.815	45.3	39.6	N.E.	41.5	52.6	37.6	108.4	34.3
Means.		29.896	40.6	36.3		39.8	50.5	30.3	101.7	25.3

## REMARKS.

27th.—Fine, very cold wind.  
28th.—Bright and cold.  
29th.—Still very bright and cold; high wind latter part of the day.  
30th.—Very fine, dry, bright, and cold; hazy first part of the morning.  
31st.—Cold, windy, and dusty; bright sunshine, very dry air.  
1st.—Morning fine, hot sunshine; afternoon windy, much dust flying, very squally.  
2nd.—Bright sunshine, very high cold wind, much dust.  
Weather very dry with clear sky, very sharp frosts on grass at night, great daily range of temperature, much wind and dust.—G. J. SYMONS.



14th	TH	
15th	F	GOOD FRIDAY.
16th	S	
17th	SUN	EASTER SUNDAY.
18th	M	Birmingham Spring Show (two days).
19th	TU	National Auricula Society, Southern Division's Show, South
20th	W	Meteorological Society at 7 P.M. [Kensington.

## FIBRELESS COMPOSTS.

**A**MATEURS, possessors of a greenhouse and a few plants, occasionally ask me what kind of "dirt" gardeners employ to grow their plants in. There is a very apparent feeling amongst amateurs who have not had a long experience in growing plants that gardeners are far ahead of them in this matter of "dirt," and that much of the trouble and want of success they experience would be overcome could they be quite sure about the proper medium to grow their plants in. Amongst gardeners who are hindered from obtaining any fibrous turf for potting, we occasionally hear a little "grumble" about the want of interest employers take in their garden and the trouble they have to get a suitable compost. It is certainly annoying to be debarred a few loads of turf annually, when, perhaps, there are hundreds of acres to pick from, and to be expected to grow plants as well as your neighbours who have their stocks of turf always in good condition. However, the fact remains, that many proprietors will not have grass land cut up, and flowers and plants are looked for just the same as if a fertile meadow were always at the gardener's command. There is no use grumbling about these untoward circumstances, the wiser plan is to make the most of the material that can be obtained. In the hope, then, of helping gardeners living in the midst of grass land which they dare not touch, and amateur cultivators who cannot obtain turf except at a dear rate, I will relate my management of soils for potting.

When I first settled here and inquired about turf for plants, I was referred to an out-of-the-way plot of grass which had been covered with trees, but it was so sandy and the turf so poor as to be useless. I also tried some from the sides of roads, but with such unsatisfactory results that I at last had recourse to some heaps of soil which had in various corners been allowed to accumulate, but this was only employed for the choicer plants. For bedding plants almost any soil is used, with the addition of a third part of spent Mushroom-bed material, and the plants do well for the short time they are in this compost. For winter-flowering plants, which are grown in the kitchen garden through the summer months, I sometimes employ the garden soil, adding a similar proportion of manure. For such plants as Chrysanthemums, Carnations, Primulas, Cinerarias, Fuchsias, and Pelargoniums, I have always been able to obtain fresh loamy soil. At present I am employing a loam heap which has been formed from the roots of Twitch Grass gathered off some of the fields, and Potato shaws. This makes the best base for a compost of any I have yet tried; it is quite as good a material as many "turfs," and

much better than anything in that way which I have yet had here. There is no fibre in it with the exception of Nettle roots, which would be much better absent; but after a few years' experience with soils devoid of fibre, we learn from failures how to make the most of any material.

A compost for pot plants should be rich in plant food, and at the same time of a texture that will stand the necessary daily waterings without becoming soured. Turfy loam answers the last of these requirements perfectly, and in a greater or less degree the former also. In a compost of common soil openness of texture is required which the roots of grasses naturally supply in turf, and, therefore, lasting properties must at the same time be secured. Good loams are richer in plant food than common garden soil, and that has also to be considered in mixing the compost. All fertile soils have the constituents necessary to plant life present in varying quantity, with the exception of the elements derived from the atmosphere and water. Lime, potash, phosphoric acid, and nitrogen may be, one or other or all, present in insufficient proportions for the well-being of the plants, and the cultivator in compounding his heap must see that there is a sufficient amount of each added. In horse and cow manure we find the most ready means of at once procuring these manurial agents, and also a medium of openness in the soil, which lasts for the great majority of plants as long as it is required. Some turfy loam is capable of supporting plants for a long time without any addition of manure. Ordinary garden soil will not do so. Only stunted growth will be made in such a soil in comparison to what it ought to be, and a soured condition will very soon be apparent at the roots of the plants. An addition of at least one-third of manure is as little as most plants will flourish in when potted in fibreless soils. If the manure is used in proper condition and prepared aright, the above proportion of manure serves as plant food and also opens the soil. Horse manure I always use in the form of Mushroom-bed refuse. It is not of much lasting value, as the manurial constituents are to a great extent exhausted in the production of Mushrooms, but for plants which are to remain only a month or two in pots, and which are required to grow quickly, such as bedding plants, it answers well.

Some flowering plants, such as Fuchsias, succeed in a mixture of the above and cow dung; but as a rule I prefer cow dung alone as a manure for most plants in pots. The last-named manure must be employed in a fresh state to at once obtain the most beneficial effects from it. I obtain it in dry weather from the park, where it dries quickly without losing much of its manurial qualities, and is in a fit condition to rub down into small flaky particles. The soil and the manure must be evenly incorporated throughout; for many plants, after having been roughly mixed with a shovel, it is passed through the hand, all lumps of soil being rubbed down at the same time. I have discontinued the use of leaf soil entirely, as I believe either of the manures I recommend is better. Bone-meal and prepared half-inch bones are employed, also soot. Chemical manures I have tried in the compost, but I do not think that is the best way to use these; periodical dressings of manure on the surface of the soil are preferable. When fibreless composts are used it is of the first importance to have the pots thoroughly drained. In preference to broken pots I employ sifted cinders. These retain moisture much longer than potsherds, and are, moreover, a more efficient means of drain-

age. It is also of importance to apply just sufficient water to moisten the soil without allowing a quantity to pass through, thereby wasting the food of the plant which the water carries away in solution. It should be understood that the rationale of "watering" consists in supplying the plant with constituents which form a great bulk of its system, and to place within reach of the roots the other constituents necessary to its life and health, and which are held ready in the soil. We cannot in practice keep the soil at all times in just the proper condition; but care in supplying water before dryness is at all advanced, and in just sufficient quantity to merely moisten the soil, with as little waste from drainage as possible, is what should be aimed at.

In connection with this subject of fibreless soils is the intimate one of the application of liquid manure. I do not think it possible to do anything like justice to plants in such soils without supplying liquid manure in far greater quantity than is necessary for plants in fibrous composts. It is a general rule amongst gardeners to give no liquid manure until the plant has been finally potted, and then only when the roots have well filled the pot. I find it necessary to apply stimulants much earlier. I employ water mixed with the manures already mentioned, also with soot, but do not find these as efficient as chemical manures. Nitre is sometimes used alone for inducing rapid growth, as it is rich in potash and nitrogen, but we want flowers in proportion to the growth. Moreover, nitre by itself is expensive. Here is a manure which, while rich in nitrogen, has also the other necessary constituents in proportion. It is from the formula of an eminent agricultural chemist, and will cost about half as much as nitre alone. To make 1 cwt. employ 37 lbs. of superphosphate of lime, 19 lbs. of nitre, 24 lbs. of sulphate of ammonia, and 32 lbs. of plaster of Paris. This contains the following per-centages of fertilising matters—Nitrogen, 6.5; phosphoric acid, 5; potash, 8; and lime, 17 per cent. I am using a simpler and cheaper mixture now, prepared from superphosphate of lime, nitre, and plaster of Paris. As already noted, the best mode of applying these manures is as surface dressings, though I occasionally dissolve a little in the water. It is further to be borne in mind, that there is no use in applying any chemical manure one day and allowing a month or six weeks to pass before another application is made. Plants to be kept in robust health require a dressing from once a week to once in ten days in the warmer months of the year, and about once a fortnight throughout the winter. It will be understood that plants in a growing state, and not in a condition of rest, have been alluded to throughout in these remarks.—R. P. BROTHERSTON.

#### RAISING RHUBARB FROM SEED.

RHUBARB has much to recommend it, as its season of usefulness lasts so long. Coming naturally in April it is capable of furnishing a supply of stalks weekly until the month of October. It can be grown, too, in small gardens in town or country where space and climate preclude the possibility of fruit trees being profitably cultivated. Rhubarb differs much, and a good variety or two will always give most satisfaction. The St. Martin's and the Albert are my favourites. These are of good colour, and bear heavily under the same attention as the more common kinds. Many who grow Rhubarb do not give it a fair chance. Half a dozen good roots in the best part of the garden will produce more useful stems than a score in the customary "odd corner." Allowing the roots to remain for years in the same place has always a degenerating tendency.

Raising a few new plants from seed is a better way of obtaining fresh stock or a new plantation than dividing the old roots. If all growers of old Rhubarb would only be advised to act on this they would reap the advantage in after years. Some who have tried seed may have a word to say against the practice if they have sown it in the open ground and never had a plant from it. I have had the same misfortune, and it induced me to discontinue sowing in the open, and I now raise the young plants under glass. Here they can be obtained early, with great certainty and with little labour or space. In most gardens three dozen new Rhubarb plants would be ample for a supply, or a good addition to the old stock, and the only space required is that needed to hold thirty-six 3-inch pots.

The seed should be sown at once; indeed, I have often found the advantage of sowing much earlier. I sow three or four seeds

in each pot, and place them in any house or frame with an intermediate temperature, where they remain until the young plants are through the soil, and ready for placing in a frame or other structure, to be hardened off prior to planting out. The soil where they are to be planted is trenched to the depth of 18 or 20 inches. If very poor, old vegetable refuse may be worked in near the bottom, and after the whole space has been trenched a quantity of good manure should be dug into the surface.

The seedlings will be found to turn well out of the pots, and they may be planted from 3 feet to 4 feet apart each way. For the first year or two some other crops—such as Spinach, Turnips, or Lettuce—may be grown between the Rhubarb. Preventing the growth of weeds is the only attention needed the first summer. When the leaves die in autumn the crowns are covered to the depth of 2 or 3 inches with manure, and this is allowed to decay, as the young growths push up through it in spring. By the time the roots are sixteen or eighteen months old many of the stems are ready for use, and it is better to remove some of them than allow them to become crowded. The crowns, too, become better ripened in autumn when they are not closely shaded with leaves; and having them thoroughly matured is of considerable importance, especially when the roots are intended to be forced during the winter.

As these notes are intended more for those who grow Rhubarb for summer use than winter forcing I will not enter fully into the latter process now, but may remark that where a large number of forcing roots are wanted annually spring seedlings would keep up a better supply than dividing old roots. Those who may have any difficulty in obtaining pure seed should select one of their own best plants for seed, and so improve their "strain."—PRACTITIONER.

#### ZONAL PELARGONIUMS FOR WINTER.

THERE has been so much written from time to time on the Pelargonium, that perhaps very little more can be said about it to interest your readers. But there still appears to be very few who know the best varieties for winter flowering in a cool greenhouse. As I have given some attention to them for the past few years, perhaps a few remarks might not be out of place. A Pelargonium with from six to ten good trusses of bloom in the dull months of winter is very beautiful, and would be appreciated in any establishment however great the variety of plants grown. They are so much better suited for room decoration in winter than in summer. One good plant in winter will last as long as three in summer. I might name a whole catalogue of good summer-flowering varieties, which would also do well in winter in a house having a temperature about 10° higher than an ordinary greenhouse; but as very few have a house of that description, and those who have one may not require information, I shall name only a few of the best varieties suitable for a cool greenhouse.

*Vesuvius*.—This is well known, but cannot be too well known, for it never fails if properly managed. I noticed two plants of this variety in a cottage window here during the severe weather of the past winter in full bloom. All the care bestowed on them was to remove them from the window at night.

*Charles Smith*.—A beautiful dark crimson variety, and one of the most valuable for winter flowering. I do not know of one to equal it. It may be called a perpetually blooming variety. The trusses are large and well formed. A plant with six to ten good trusses is very beautiful in a vase.

*Rev. F. F. Tenn*.—A very good scarlet variety, and first-rate for winter flowering, bearing very large trusses. I think it would also make a good bedder, but we have only tried it in pots, for which it is most suitable.

*David Thomson*.—A dark crimson variety. The trusses are large, but not so well formed as Charles Smith. They hang rather loosely, the stalks of the single flower being much longer than any of the other varieties. They are very useful for button-hole bouquets if worked-in singly in a half-open state. I made some bouquets this winter of them, with double white Primulas and Violets, and they were much appreciated.

*Colonel Holden*.—An excellent scarlet variety. The trusses are large and well formed. I have measured trusses 12 to 16 inches in circumference in midwinter. It should be in every collection either for winter or summer flowering.

These are five of the best varieties I know for winter flowering. The two I prefer are Charles Smith and David Thomson, which according to my experience are undoubtedly the best. They are all well adapted for planting near the back wall of a vinery. I have them trained up the wall of a late vinery; they flower very freely, and are admired by all who see them. The present is our season of propagating plants for winter flowering. The cuttings are inserted singly into small pots. When rooted they receive their



final shift into sizes suitable for all the purposes for which they are required. I never employ larger pots than 5 or 6 inches in diameter; the plants flower well in these, and are suitable for most decorative purposes.

The soil employed is light fibry loam from an old pasture. It is cut about four weeks before using, pulled to pieces, and placed in a heap till required. The only addition to this is a little leaf soil, a small quantity of charcoal, and a few ground bones. In this compost sturdy plants are obtained that are more likely to give satisfaction than those in a lighter compost. As soon as the weather is warm enough they are placed out of doors on a bed of ashes fully exposed to the sun. They are never allowed to become too dry, and soot water is freely supplied, proving very beneficial, as it is for most plants in pots if used judiciously. I sometimes think that if a little of the extra care given to Roses was bestowed on useful winter-flowering plants, we should have brighter conservatories and flower houses in the dull months than are usually seen.—J. McK., *Leadenham*.

#### THE BARNET NURSERIES.

MESSRS. CUTBUSH & SONS' Highgate Nurseries are well known to most horticulturists, but many are unaware that a very large number of their plants are propagated and grown at the High Barnet nursery, indeed the chief bulk of their stock is raised there. What are termed hardwooded plants constitute the chief feature under glass; and in the open air Conifers, Roses, and Hollies, with numerous ornamental shrubs and trees, are grown in large numbers. During a recent visit I took a few notes in each department, which may possibly be of some use to readers

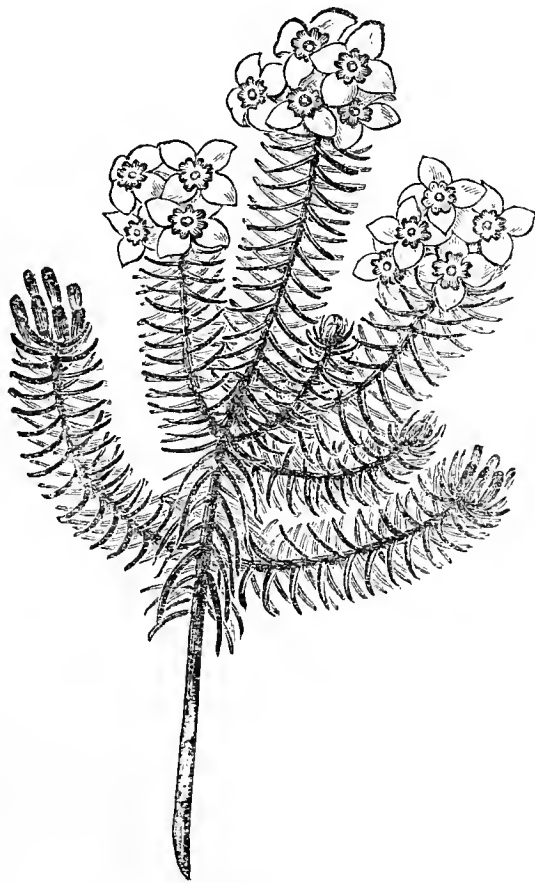


Fig. 66.—*Erica primuloides*.

intending to purchase and requiring a small selection of good plants.

**EPACRISES.**—These popular and useful plants are largely represented, though at the time of my visit the chief portion of the stock had been cleared out; and the extent of the trade in such plants may be estimated from the fact that more than thirty thousand are annually propagated of all the best varieties in commerce. Being sturdily grown, and gradually shifted as they progress until they are in 48-size pots, they constitute extremely useful plants for decorative purposes, though of course many are disposed of at a smaller size. The chief point to insure the satisfactory flowering of Epacrises—as, indeed, with most other plants—is to have the wood thoroughly ripened, and without that is effected little success can be expected. The following varieties would form a collection suitable for most gardens, but where an extensive collection is grown many other beautiful varieties might be added. *White*.—*Alba odorata*, fragrant, fine white flowers. *Hyacinthiflora candidissima*, one of the best whites; flowers of

excellent form. *Impressa alba nova*, very neat. *Impressa candida compacta*, similar but dwarfer in habit. *Lady Panmure*, a beautiful variety. *Mont Blanc*, pure white; a general favourite, and largely grown. *Nivalis*, *nivalis compacta*, and *onosmaeflora*, all good white varieties; with *The Bride*, very delicate and pretty. *Scarlet, Rose, and Crimson*.—*Ardentissima*, medium size flowers, bright scarlet. Brilliant, fine crimson. *Campanulata*, crimson; with the forms *grandiflora rubra* and *maxima*, both red. *Copelandi*, fine scarlet flowers. *Etna*, bright carmine. *Fireball*, excellent crimson. *Fulgens superba*, scarlet. *Hyacinthiflora* and *rosca*, two excellent rose-coloured forms. *Impressa ignea* and *eoccinea*, scarlet. *Lucifer*, very bright scarlet. *Model*, beautiful pink, large lobes; and *Vesuvius*, bright glowing crimson. *Bicolors*.—*Butterfly*, white tube, rosy limb, late; a good variety. *Coruscans*, rose, tips of lobes white. *Eclipse*, an extremely useful variety, bright red tipped with white. *Grandiflora rubra*, white and carmine. *Lady Alice Peel*, delicate rose tubes, white limb. *Miniata splendens*, bright crimson tube, white lobes; rather loose habit, but an excellent variety. *Racemosa*, rose-red tube, pink lobes. *Salmonea*, salmon tube, carmine lobes; and *Sunset*, pale orange tube with blush-tinted lobes.

**ERICAS.**—Heaths are grown even more extensively than the Epacrises, the annual stock propagated exceeding sixty thousand. Numerous varieties are represented, but a few, such as *E. hyemalis*, *E. gracilis*, *E. melanthera*, and *E. Willmoreana*, are grown in large batches to supply the demand that exists for these popular and comparatively easily grown forms. The season was not one at which a selection could be made, as there were few in flower, but the vigorous health of the whole stock was remarkable. Many hundred feet length of frames are devoted to plants in all stages of growth, and all appear to be equally thriving. In the houses are some excellently trained specimens of the choicer varieties, comprising those of slower growth, which require considerably more care in their culture. What they require they certainly have, for the majority of the specimens could not be surpassed in health and neatness. Of the few species in flower one particularly attracted my attention—namely, *Erica primuloides*, the *E. dilecta* or *delecta* of gardens, a spray of which is represented in fig. 66. It is remarkable for its dwarf compact habit, and the small but extremely pretty flowers being borne four or five together at the points of the branches. The flowers are white with a faint pink tinge and a dark circle near the centre, which contrasts markedly with the delicacy of the other portion of the corolla. It was introduced to this country from the Cape early in the present century, but is still comparatively rare.

In the general collections of hardwooded and New Holland plants many pretty rarities are included, besides a good stock of the best kinds. *Eriostemons* receive some attention, especially *E. scabrum*, which is of dwarfer growth than several of the other species, and also flowers very freely. *Genetyllises*, *Darwinias*, *Dracophyllums*, *Boronias*, and many more genera are represented by the most useful forms known. A charming little myrtaceous shrub, *Hypocalymma robustum*, that is very seldom seen, was flowering very freely and well deserves to be more generally grown, for when a plant about 2 feet high and the same in diameter is bearing a profusion of its small bright rose-coloured flowers it is very attractive. The accompanying sketch (fig. 67), of a spray shows the character of the flowers and the mode in which they are borne on the shoots, but the latter are frequently more branched. The flower has five small rounded petals and numerous stamens, the leaves being narrow, and when crushed they emit an odour resembling Lemons. The plant succeeds

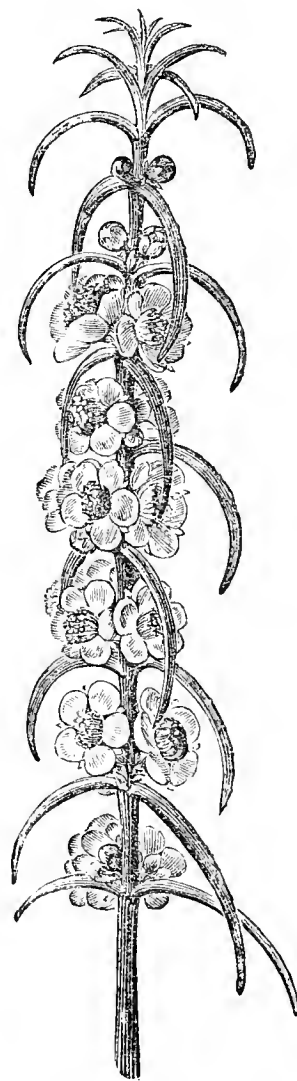


Fig. 67.—*Hypocalymma robustum*.

admirably in a compost of loam, peat, and sand if care is paid to draining the pit thoroughly, an ordinary greenhouse temperature being suitable for it. Seeds were originally obtained by Messrs. Lucombe, Pince, and Co. of Exeter, from the Swan River Territory, and the plants raised were first distributed about forty years ago.

Camellias, Azaleas, and many other plants are also extensively grown under glass, while the stock of Hollies is remarkable, comprising over fifty thousand specimens of various sizes and many varieties, respecting which a few notes will be contributed at a future time.—L.

### NEWCASTLE SPRING SHOW.

THE fifth spring Show of the Newcastle-upon-Tyne Incorporated Horticultural and Botanical Society, which has been established fifty-six years, was held on the 6th and 7th inst. in the Town Hall and Corn Exchange, which as usual were effectively decorated for the occasion. It was an immense improvement on any of the previous spring exhibitions of the Society; the Azaleas especially were represented in greater numbers and of much superior merit than heretofore. The plants that secured the premier honours shown by Mr. Yule, gardener to H. Pease, Esq., Pierremont, Darlington, elicited the highest encomiums from experienced critics. Such old-fashioned spring flowers as *Dielytra spectabilis*, Wallflowers, and *Spiræas* were shown in more than ordinary excellence, and visitors from London considered the Exhibition superior to those that have been recently held in the metropolis.

In Class A, open to all, for four specimen plants in bloom, no less than eleven lots were staged, many of which were of great excellence. Mr. Yule was an easy first with a good plant of *Genetyllis tulipifera* over 4 feet through, splendidly flowered and coloured. *Dendrobium nobile*, 5 feet through, crowded with flowers; a good *Aphelaxis macrantha*, and *Clerodendron Balfourianum* constituted his stand. Mr. John Crozier, gardener to J. W. W. Wilson, Esq., Shotley Hall Gardens, being second with a superior plant of *Erica Wilsoni* in excellent bloom; *Dendrobium nobile* and *Azalea Criterion* were also very good. Mr. James Noble, gardener to Theo. Fry, Esq., Woodburn Gardens, Darlington, was third, his noteworthy plants being *Tetratheca hirsuta*, which was grand, and *Erica barbata* major, very good. In the other stands many good specimens were staged, notably those from Mr. John Thompson, nurseryman, Newcastle, which comprised a magnificent plant of the rare *Cymbidium eburneum* bearing twenty-two open flowers. This plant elicited from all sources much admiration, and a special prize was awarded for it. Mr. Neil Black, gardener to Misses Pease, South End, Darlington, exhibited an excellent plant of *Rhododendron Countess of Haddington*; and Mr. Battersby sent a fine *Anthurium Schertzerianum* with very large spathes.

For four specimens of *Azalea indica* there were ten competitors against two last year; the plants extended in one row the entire length of the hall, and had a most charming effect. The training was much superior to former occasions. Mr. Yule was first with four good plants of *Roi d'Holland*, Mrs. Wm. Bull, Iveryana, and Perfection. They were very open in size and symmetrical in form. Mr. Methven, gardener to J. Lange, Esq., Heathfield House, was an excellent second. His plants were taller than the first, but very profusely flowered. Mr. Neil Black was third with very fine pyramid specimens, and the flowers were excellently coloured. Many excellent Azaleas were shown, some of which were not in bloom, which might have been remedied had they been placed in a higher temperature. In the corresponding class for two Azaleas thirteen collections were staged, all of excellent merit, Mr. Yule being first and Mr. W. L. Thompson second. For three *Rhododendrons* (dissimilar) Mr. Yule was also first, followed by Mr. Noble with fine plants of *R. Gibsoni*, *R. Countess of Haddington*, and *R. Nuttalli*. In the corresponding class Mr. Yule was also first, followed by Mr. Anderson.

For six plants of *Dielytra spectabilis* Messrs. John Thompson and Sons were first. Seven collections were staged; being just placed above the following plants they had a very effective appearance. The foliage was of good colour as well as the flowers. It is seldom they are seen done so well. In the B division Mr. Yule and Mr. Blanchard, gardener to Mrs. Burrell, Low Condercum, Benwell, were first and second. *Spiræas* in both A and B classes were excellent, some of them exceeding 3 feet in diameter; the foliage good and the flower spikes numerous, Mr. Noble being first in both classes. The *Cinerarias* were fine in both classes. In the A class eight collections of six were staged, which were much admired. Some of the plants had heads of flowers 2 feet across. They were placed in a high position at one end of the room, from where all visitors had easy access to inspect them. In the A division class Mr. G. Pattison, St. Ann's Hill Nursery, Carlisle, was first. In the B division class Mr. Yule was first among six competitors. Primulas were very numerous, Mr. T. Lawson being first with six very fine specimens in 6-inch pots. Mr. Woods, gardener to H. N. Middleton, Esq., Fenham Hall, was first in the corresponding class of division B. The display of spring flowers was still further augmented by the handsome *Cyclamens*. Mr. Yule continued his extraordinary success here by taking first in both classes with plants,

appearing not more than two years old, superbly flowered. Mr. Pattison was second with plants that had been very fine, but were slightly past their best.

Lily of the Valley was shown in greater numbers than in any previous spring Show. In the A division class for six pots five competitors entered, Mr. Yule being again first, Messrs. Thompson & Son second, and Mr. Lawrenson third, all showing admirably, both foliage and flowers being good. In the corresponding B division class Mr. Noble was the chief exhibitor. Hardy perennials, Scillas, and Hepaticas were also well shown. In all the Society's Shows table plants form a strong feature, no less than twelve collections of six being staged. Mr. Whiting, gardener at Shot Tower, being first, followed by Messrs. W. Lawrenson and Yule.

Auriculas were not shown so numerous nor so well as last year, which is accounted for by the Show being a week earlier and by the past severe winter. Handsome prizes were offered by the Society for these plants. For twelve Auriculas (dissimilar) Mr. Thos. E. Hay, Killingworth Colliery, was first with Glory, four pips; Mrs. Sturrock and Pizarro, nine; Ruby, nine; Blackbird and Lancashire Hero, six; Charles Perry, ten. Mr. Edward Adams, Swallow, second, and H. Sanderson, Whalton, third. For six dissimilar varieties (Alpines excluded) Mr. Hay was also first, and Mr. Adams second. For four dissimilar varieties (Alpines excluded) Mr. Jos. Watson, nurseryman, Fenham Park, was first. For single specimens of green-edged, grey-edged, and white-edged varieties Messrs. H. Sanderson, E. Adams, and Thos. E. Hay were respectively first. For one Auricula, premier plant in Show, Mr. Thos. E. Hay was first with Lancashire Hero containing six pips. Polyanthuses were also inferior to those of last year. For six gold-laced varieties Mr. Atkinson, florist, Winlaton, was first with Formosa, Beatrice, Diadem, and some seedlings finely laeod; Mr. Wm. Henderson, gardener to Col. Cowan, Blaydon Burn, was second, his stand containing a flower named Queen of the Tyne. For six Polyanthuses, other than gold-laced, Mr. Atkinson was first.

Hyacinths formed one of the grand features of this Show. For the Society's prize of £5 six collections of twenty-four were staged, Mr. Jos. Watson being placed first with handsome specimens bearing massive spikes and healthy foliage. Messrs. John Thompson and Son were second with good specimens, but in some instances a little past their best. Messrs. Nairn & Son, Pilgrim Street, were third with moderately fine examples. In the corresponding class for twelve Hyacinths Mr. Jos. Watson was again first with plants equal to his twenty-four; Mr. Nairn was a good second. In the corresponding B class Mr. J. Brown, gardener to Mrs. Joicey, Whinney House, Gateshead, was first; and for six Mr. T. Liddell, Low Fell, obtained a similar position. Double and single Tulips both in divisions A and B were very good, Mr. Jos. Watson winning both prizes in the former class, while Messrs. J. Woods and J. Storrie were successful in the latter. The display of Polyanthus Narcissi was magnificent. In each class forty-five pots were shown, and each pot contained ten to twelve spikes of flowers.

*Cut Flowers and Table Decorations.*—For these there is strong competition at all the Society's shows, and the present one was no exception. For twelve Camellia blooms Mr. W. L. Thompson, gardener to Captain Bell, Wolsington, was first. Mr. Yule was first for twelve *Rhododendron* trusses. For twelve Azalea blooms eleven collections were staged. Mr. J. Short, gardener to A. Pease, Esq., Hummersknott, Darlington, was first with fine flowers. Roses were not numerous, Mr. Pattinson being the chief exhibitor, and was placed first with twelve *Maréchal Niels*. The first prize of £2 10s. for an epergne brought out in the A division class twelve competitors, and ten each in the B and C division classes. They were arranged on the central table of the Town Hall, which were flanked on each side by the numerous bouquets. In the A division Mr. Whiting was first. His stand was very effective. The top tier consisted of *Salvias*, *Anthurium Schertzerianum*, and *Deutzias*. The base consisted chiefly of *Eucharis*, Azaleas, and *Amaryllis*, the whole being draped from the top tier with *Fuchsia* sprays. Although heavy it was admirably arranged. Mr. Thompson, gardener to Lindsay Wood, Esq., South Hill, Durham, was second. He had his usual March stand. The top consisted of *Oncidium sphacelatum*, *Spiræas*, and four large spikes of *Oncidium excavatum*. This hung down to the bottom of his stand, and gave it somewhat a heavy appearance. Twelve bridal bouquets were shown, Mr. R. Pattinson being first. His arrangement was very effective, consisting of white Camellias, Roses, *Spiræa*, *Phalænopsis amabilis*, and *Odontoglossum Bluntii*, which were evenly arranged with *Adiantum gracillimum*. Amongst greenhouse plants *Genistas* were shown well, also *Acacias*, and the display of *Richardia æthiopica* was certainly not by any means the least effective part of the Show. Several neat designs in the hand-painted unbreakable flower pots were shown by Mr. W. H. Hilton, London Road, Liverpool, not for competition. Mr. John McIntyre also submitted an excellent dish of Strawberries, apparently of President and Garibaldi.

Mr. Gillespie, the Secretary, and his numerous assistants were successful in carrying out all the arrangements satisfactorily to both exhibitors and visitors. The Committee were indefatigable in rendering every service necessary, and we were informed that the receipts on the first day were nearly £40 more than last year. The object of the Society being incorporated was to provide against contingencies of failure, as each one of the Council now becomes responsible for any financial deficit that may be incurred. Only



10s. subscribers are termed members, and that have any voice in the management of the Show. Of 5s. members there are nearly two thousand, while the 10s. members have not at any time exceeded two hundred. The former are now called associates only. Amongst the general body of these members there is a feeling of estrangement at their power being nullified. Whether the Committee have done wisely in instituting the new order of things no one can tell. There is not the slightest doubt they acted so for the best, and their reason for not admitting the 5s. subscribers as members was that the incorporation would have cost six times more than it has, and that the general body of members have never taken part in the annual meetings.

#### MARIE VAN HOUTTE ROSE—HARDY FLOWERS.

"*Humanum est errare.*" This must be my apology to all your readers who feel aggrieved at my omitting Marie Van Houtte from my list of Tea Roses. Shall I ever hear the last of this omission? I have tried to explain how this came about; but as another letter on the subject appears in the Journal this week allow me to apologise once more, and to say that I hold Marie Van Houtte to be one of the finest, if not the finest Tea Rose in cultivation.

Shall we ever have done with this terrible winter? Snow fell early in October, and now we are in the middle of April, and dire winter, or worse than winter I hold such east winds as these, still reigns. I went down to Tooting one day this week to see Mr. Peter Barr's Narcissi and Daffodils. A howling wind blew the dust in my eyes, and did its best to prevent my getting there at all; but I struggled on, and at last reached the nursery, to find few plants in bloom. The Hellebores were over, and the Daffodils only just beginning to bloom. Here and there you might find a choice one, but most were the ordinary single Trumpet Daffodils, and these seemed to shiver in the wind. I had not the heart to go further and investigate matters at Mr. Parker's, so my journey in the cruel north-eastern was a bootless one.

Talking, however, of hardy flowers, may I ask if any of your readers have noticed how these are now neglected in Kensington Gardens? Whole beds of herbaceous plants are being done away with. At Queen's Gate there used to be long beds full of these plants; now these have been dug up, the ground has been levelled, and grass is sown. Where there are a few plants hens are allowed to hunt and scratch for worms, and the whole herbaceous grounds seem to me to be most neglected. All that has been done this winter has been to put some leaf soil on the surface of the beds; the plants are not divided, but left to multiply and grow just as they like. It seems to me a great mistake on the part of the authorities to do nothing to promote the cultivation of herbaceous plants, and I hope you will allow the Journal—which is, I know, read and valued by the Curator of the Gardens—to draw his attention to this matter. Might not also labels, with the names of the plants clearly written as at Kew, be added? This is done for all the trees and Conifers; why not, then, for the Paeonies, Irises, McGaseas, &c.?—WYLD SAVAGE.

#### SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY.

A SPRING Exhibition was held by this Society in the Cutlers' Hall, Sheffield, on the 4th and 5th inst., and such a fine display of Azaleas and early spring flowers has seldom been witnessed in Sheffield. Among the principal features of the Show were groups of plants (foliage and flowering) arranged for effect. The first prize in this class was taken by Mr. James Keeling, gardener to D. Ward, Esq., with a very tastefully arranged group, containing well-flowered examples of *Dendrobium Wardianum*, *D. crassinode*, and *D. nobile*, Camellias, Azaleas, *Imantophyllums*, *Anthurium Schertzerianum*, and Cinerarias, healthy plants of Crotons, Palms, and Ferns. Mr. James Udale, gardener to H. E. Watson, Esq., was second with an excellent group containing very fine Azaleas, a handsome seedling *Rhododendron* with large pure white flowers, and good Hyacinths and Tulips. Mr. J. Walker, gardener to B. P. Broomhead, Esq., was third with a group of smaller plants, which were, however, very fresh and bright, especially noticeable being a number of well-grown plants of *Lachenalia tricolor*. In the class for six varieties of *Azalea indica* Mr. J. Udale was first with remarkably well-flowered plants of excellent varieties. For a single specimen *Azalea* the same exhibitor was again first with a grand plant of *A. Stella*. For three Orchids Mr. Keeling was first with *Cœlogyne cristata*, *Cattleya Trianae*, and *Odontoglossum Alexandræ*; Mr. Udale being second with *Dendrobium Schröderii*, *D. densiflorum*, and *D. crystallinum*. For a single specimen Orchid Mr. Keeling was first with a very finely grown *Dendrobium Wardianum*.

British Ferns were shown in very satisfactory condition considering the severe winter they have just passed through. In the class provided for a group of these Mr. John Eadon was first with fine *Scolopendriums*, representing upwards of twenty varieties. British Filmy Ferns were well shown by Messrs. H. Davy, J. G. Newsham, and

J. Eadon. Cinerarias, Mignonette, and Hyacinths were chiefly exhibited by Mr. J. Walker, who was placed first in the classes provided for each. The Cinerarias and Mignonette were greatly admired. Narcissi were shown by Messrs. T. B. Hague and J. Walker, who were first and second respectively.

Messrs. Fisher, Son, & Sibray of the Handsworth Nurseries exhibited a splendid bank of plants not for competition, especially noticeable amongst which were fine groups of *Cyclamen persicum giganteum*, *Lily of the Valley*, *Azalea indica* and *A. amœna* in large numbers. *Rhododendrons* of the Princess Alexandra and Taylori type, which are finely grown at Handsworth, were represented by well-flowered specimens. Healthy specimens of *Cymbidium eburneum*, *Oncidium concolor*, *Odontoglossum cirrhosum*, *O. Alexandræ*, and several *Dendrobiums* were also staged. Mr. Crossland of the Richmond Nurseries exhibited a group containing a large number of finely grown Hyacinths, good specimen plants of *Arancaria excelsa*, and a number of good Azaleas. A Fern case was shown by Mr. H. Davy of Pitsmoor, containing a collection of varieties of Filmy Ferns in luxuriant health.

Cut flowers formed a fine display; the chief prizetakers were Messrs. J. Udale and Keeling, and Walker. Mr. Keeling was also first for a buttonhole bouquet, which consisted of a single bloom of *Dendrobium crassinode*, with a small spray of *Euphorbia splendens* and *Hotæia japonica* behind and above it, with a single small Fern frond for the background—a very tasteful arrangement. A grand pyramidal-trained plant of *Gloire de Dijon* Rose about 5 feet high, and 4 feet through at the base, loaded with expanded blooms, was shown by Mr. Udale, and deservedly obtained the first prize.

The Show was opened to the public at 1 P.M. on Monday by the Society's President, H. E. Watson, Esq., in a very appropriate speech. He was supported by the Vice-President, W. Chesterman, Esq., Master Cutler, and several patrons. The general arrangements of the exhibits were under the direction of the Curator, Mr. B. Simonite, who succeeded in giving general satisfaction.—W. K. W.

#### WOLFF'S GARDEN PENCILS.

THE utility of these pencils was established after much discussion in our columns, and the manufacturers now ask us to direct the attention of our readers to a mode of making the pencils with a new swivel attachment, which admits of a string being tied to the pencil for the purpose of hanging it in the greenhouse or potting shed, and so preventing its being mislaid, and of securing it to the dress of the owner so as to be always ready at hand. The usefulness of this simple arrangement is at once apparent on reference to the accompanying figure.

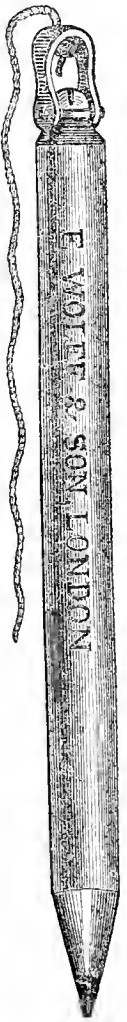


Fig. 68.

#### PLANTING POTATOES.

THIS very important crop ought to be planted now the ground is dry. It is essential that the soil be in good condition for Potatoes and the sets well prepared. Both points will have been gained by those who have delayed planting, and a start will be made equal to that of last season, which contributed materially to the production of heavy crops.

The owners of small gardens who do not attempt to grow many Potatoes should confine themselves to the growth of early kinds only, as this will admit of the ground being cleared in time for a profitable successional crop. *Mona's Pride*, *Rivers'*, *Veitch's*, and *Myatt's Ashleaf* are all suitable, and on a hot sandy soil *American Rose* or an improved form of it. *Extra Early Vermont* will crop heavily and be of good quality. The rows of the four former may be placed 2 feet apart, and the sets 9 inches apart in the rows. On strong soils the rows should be 30 inches apart, and the Americans should also receive this space. If it is intended to crop between the rows, and which is advisable where other space cannot well be spared for Brussels Sprouts, Kales, Autumn Cauliflowers, and Broccoli, the rows of the Ashleafs ought to be disposed 3 feet apart, and the stronger growers 42 inches.

The ground cannot well be too loose for Potatoes, and for this reason the old plan of drawing drills is still commendable, especially if the ground be dry. Where the ground is undug the Potatoes may be planted as the digging advances, using a line and clearing the drills with the spade. This practice does away with the necessity of trampling on the soil, which in many instances has to be guarded against. The sets are sometimes dropped into holes made with a blunt



dibble and covered with the help of a hoe. This is the most expeditious method, but is not recommended to be adopted except on light soils. Shallow planting should be practised on heavy soils, a depth of 6 inches being suitable for medium and light soils. In all instances all side shoots should be rubbed or picked out, carefully preserving the strong central shoot at planting time, as much better results are thus obtained. It is not advisable to cut kidney Potatoes of the Ashleaf type, but the rounds may be cut into sets according to the size of the tuber.

If solid manure is used it should be dug-in well below the sets, and any artificial manure should be sprinkled in the rows at planting time. The latter should be used very sparingly, or too much top growth and disappointingly light crops will result. Snowflake and Schoolmaster are good main-crop varieties, and where there is plenty of space at command Magnum Bonum should be largely grown. Scotch Champion is very suitable for planting in fields.

These notes are written with the object of aiding amateur cultivators to produce a satisfactory supply of Potatoes for the table, and they may also possibly be useful to some young gardeners who have hitherto spent most of their time in the "houses," but are now finding out, as all young men do, that Potato culture is an important element in gardening; and some of them, too, need a reminder that the new fancy varieties that are necessarily costly are not nearly so much prized by a gentleman when they are placed on his table, as they are by the cultivator when he places them in the ground. These varieties are suitable for exhibition, and as such I am not likely to say anything against them, but for everyday table use it is safe to rely on "good old sorts"—at least this is the experience of—A PRIZETAKER.

#### FLOWER SHOW SCHEDULES.

MR. FERGUSON'S letter on page 275 refers to a subject of great importance. It is simply impossible for a judge to please all in any competition, but the difficulty is immensely increased if the schedules are not strictly accurate. In every schedule the exact exhibits should be mentioned, and the number of each sort—viz., If vegetables, best collection of six varieties; nine Potatoes, nine Tomatoes, three Cauliflowers, nine Onions, nine Turnips, one peck and a half of Peas. If twenty collections are staged half would be weeded out at the first glance, and at the second another half, having five left. If the judges cannot otherwise decide, every point should be taken, the points added, and, of course, the larger number stands—No. 1, first; No. 2, second; No. 3, third. Respecting fruits the case is precisely the same. For example: if only one dish of Grapes is mentioned, A shows Hamburgs, while B shows Muscats, causing confusion and dissatisfaction; while if both staged the same variety the test would be easy, and, unless to the confirmed grumbler, the case satisfactory.—R. GILBERT, *Burghley*.

#### ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE Spring Show of the above Society was held in the Waverley Market, Edinburgh, on the 6th and 7th inst. The first day's Show was remarkable for the intense frost of the preceding night, 12° to 16° of frost being quite common in various localities, while at Floors Castle near Kelso as many as 18° were registered. It might have been expected that many exhibitors would be absent, but few were missing, and the Show was good. The Azaleas have never been so large and fine before, and the same may be said of the Orchids, while the hardy spring-flowering plants were very attractive.

Turning to the prize list the first nine classes were devoted to Hyacinths and other Dutch bulbs. These commonly form one of the chief attractions of the Exhibition. This year, however, they were shown in much smaller numbers, and the quality was also below the average. The first prize for twelve Hyacinths was secured by Mr. A. Crombie, Royal Asylum, Morningside; and the first prize for nine by Mr. J. Pearson, gardener to Lady Dundas, Beechwood, Corstorphine. These were the only fine Hyacinths exhibited by gardeners. Messrs. W. Penn, Greenpark, Liberton, and G. Drummond, Edinburgh, were the principal prizetakers in the other classes. Messrs. J. Pearson, Crombie, A. McDonald, Asbfield, and Gordon, gardener to Major Wauchope, Niddrie, exhibited Tulips and Narcissi well, securing the chief prizes. For one specimen Azalea Mr. Paul, Gilmore Place, was first with a grand example of Duc de Nassau; Mr. J. Patterson, Millbank, being second. For four Azaleas the same positions were maintained by the above exhibitors. In the class for six stove or greenhouse plants in flower Mr. Paterson was first with good specimens, Mr. Paul following closely. Fine-foliage plants were below the average, the best six being staged by Mr. S. Graham and the best two by Mr. Paterson.

Passing to the table of plants, 20 feet by 5 feet, we noticed that Mr. Priest, gardener to the Marquis of Lothian, Newbattle Abbey, won the first place with a bright collection of flowering and foliage plants: two fine forms of *Odontoglossum Pescatorei* and a fine *O. Alexandræ*

were particularly noticeable. The second place was gained by Mr. R. M. Reid, South Oswald Road, Edinburgh, with a very effective group; Mr. Paul being third with a group chiefly remarkable for the number of Orchids it contained and its bad arrangement. Several collections of hardy spring-flowering plants were shown, Mr. McLure securing the first prize. Some of the other arrangements were more effective, but in this instance the great variety of plants influenced the decision of the Judges. In the class for two Orchids Mr. Priest was placed first with a fine variety of *Dendrobium fimbriatum* and a healthy *Cypripedium caudatum*. For one Orchid Mr. Paul took first prize with a remarkable specimen of *Odontoglossum Pescatorei* with three branched spikes having respectively over forty, fifty, and sixty flowers each, with several spikes of unopened flowers to follow. The same exhibitor staged the first-prize collection of six exotic Ferns, all large healthy specimens. Passing a number of exhibits of little interest, Mr. Pearson showed some fine examples of Lily of the Valley, Messrs. Paterson and Priest showing pot Roses in good condition. A number of cut Roses were shown, but all of inferior quality.

Fruit was represented by several dishes of good Apples, a Pine Apple, a dish of Strawberries, and eight pairs of bunches of black Grapes; Mr. Anderson, Oxenford Castle, being first with Lady Downe's, and Mr. Kemp, Langlee, Galashiels, a very close second. Only two collections of vegetables were staged; Mr. Potter, Seacliffe, North Berwick, being first with excellent Brussels Sprouts, Seakale, French Beans, Celery, Leeks, and new Ashleaf Potatoes.

The competition amongst nurserymen was very limited. Messrs. Downie & Laird had first prizes for Hyacinths, Rhododendrons, Cyclamens, and Azaleas. Some of the Rhododendrons were enormous specimens, more like young trees than bushes. Messrs. Todd & Co. were successful in the bouquet competition; Messrs. Bryson, Helensburgh, and Sinclair, Prestonkirk, for cut Roses; and Mr. Robertson Munro for hardy flowers.

Several nurserymen contributed groups of plants: Messrs. Downie and Laird, and Methven & Sons having chiefly Rhododendrons; Messrs. Ireland & Thomson a collection of stove and greenhouse plants. Drummond Bros., Mr. Taylor, Hermitage, Leith, and Mr. G. Sinclair, Prestonkirk, East Lothian, and the Lawson Seed and Nursery Company, Edinburgh, also contributed interesting collections of plants. Mr. Potts, Fettes Mount, Lasswade, staged a collection of 260 kinds of Saxifrages, a lemon-tinted-leaved seedling named *S. Fetestonia aurea* receiving a first-class certificate. Messrs. W. Thomson and Sons exhibited some remarkably tasteful bouquets, crosses, and wreaths. Stuart & Co. had on exhibition two of their new patent granolithic vases designed for West Prince's Street Gardens. The material is exactly like sandstone. First-class certificates were awarded to the following plants—*Rhododendron Thomsoni*, large sweet-scented white variety from Messrs. Ireland & Thomson; *Soldanella minima alba* from Mr. Robertson Munro, and the above-named Saxifrage. Four Vanda trusses from Mr. McIntyre, The Glen, Peebles, were highly commended; as was also a basket of flowers consisting of double and single Pelargoniums and blue Cinerarias from Mr. McMillan, Broadmeadows, Berwick.

#### ROSE AMATEURS.

I AM acquainted with numerous Rose growers and Rose showers. May I through your columns be permitted to ask the Committee of the National Rose Society to deal promptly with what is likely to become an important question? We wish to know what constitutes an amateur, what he may and may not do. I do not desire to enter into particulars, but I think I am justified in saying that if the Committee do not clear away doubts on this point a serious difficulty will arise at their Rose shows. I know many others who, like myself, feel keenly about it, and who, although not likely to protest, still think that they are not having fair play. If the matter is taken in hand by the Society everyone will be satisfied; but if it is neglected the evil will grow, and what can be remedied now with little trouble and no ill-feeling may hereafter endanger the welfare and even the existence of the Society. A word from you, sir, would go a long way. If you can, please say it in behalf of—A GENUINE AMATEUR.

[We consider "an amateur," in the sense referred to by our correspondent, is a grower of Roses, but not for sale.—ED.]

#### DOUBLE ZINNIAS.

THERE are few more gorgeous flowers than these that can be so readily raised from seed and easily grown in pots for the adornment of the conservatory. They are represented in various colours, some being of great richness, and the symmetrical forms of the flowers are highly imposing. It is not always that plants which bear blooms equal to those represented in fig. 69, can be raised from an ordinary packet of seed, but I have seen many in no respect inferior the product of seed that has been saved from well-grown plants and selected flowers. Seeing how readily and profitably seed of popular half-hardy annuals can be raised, it is somewhat surprising that some of our enterprising florists and seedsmen who have light glass structures at their disposal do not

make an effort to raise seed from selected plants, and so establish equal or superior strains to those of the foreign growers, and keep more of English money in this country. British florists have surpassed the continental growers in raising superior strains of such plants as Primulas, Cyclamens, Calceolarias, and Cinerarias, and why cannot they do the same with Stocks, Asters, Zinnias, &c.,

that are indispensable for gardens in summer? There appears to be a wide field for trade enterprise and cultural skill open in this direction in England. In a small way seeds of such plants as those referred to have been raised "at home," and the results have been so good as to encourage the practice on a larger scale. But to return to the Zinnias. Flowers equal to those referred to



Fig. 69.—DOUBLE ZINNIAS.

have been raised from English-grown seed, the plants having been grown in pots and the seed ripened under glass.

Only gentle heat is requisite for raising Zinnias from seed, and a cold frame for growing the plants. The present is the time for sowing, and it is of the greatest importance that the plants are not drawn and "coddled" in their early stages. Neither must the roots be much injured during transplanting and potting. To

produce vigorous plants and fine blooms the soil must be rich; that in the lower half of the pots in which the plants are intended to flower should be mixed with fully half its bulk of rich manure, the top portion being lighter, or the young plants may "go off." Zinnias make splendid beds in the flower garden, and for this purpose the singles are, perhaps, as effective as the doubles; but for growing in pots for the conservatory the double are far



pre-eminent, and are certainly deserving of more attention than is at present accorded them.—AN ENGLISHMAN.

### HOLLY HEDGES.

As this is the time of the year when many are thinking of forming hedges it may be of advantage to submit a few practical notes to the readers of our Journal. The best hedge plant is certainly the common green Holly, as it forms an impenetrable and ornamental fence, and when well established acts as a capital break to cold winds. The results of my experience here given have been bought at a great cost, for I have had hundreds of Hollies killed by injudicious or careless planting. The most important matter to be attended to is the purchasing of the Hollies. It is a wise plan to purchase the plants near home, and to see and examine them before buying. The plants which are most suitable for moving have an abundance of fibrous roots; to such the soil adheres well. If the plants have long straggling roots from which the soil easily falls they will very likely be killed by removal. Nurserymen who grow Hollies extensively are careful to transplant them very often, so as to encourage the formation of fibres at the root. On stiff land Hollies cannot be grown satisfactorily for removal unless manure and peat are worked well into the soil. From the above remarks it will be seen that a judicious buyer will have several plants taken up so that he may examine the roots. Before the plants are lifted everything should be prepared so that they can be planted in the required positions without any delay, as it is most injurious to keep Hollies long out of the ground. One of the strongest points in my mode of procedure is to transplant quickly. I have had Hollies lifted in the morning, conveyed ninety miles by rail, and planted before night. There is the great danger of the roots becoming dry, which must be carefully avoided. If by accident the roots do become dry it is a wise plan to dip them into a bucket of water. In planting the soil should be trodden only moderately firm. The best compost to work round the roots to assist the formation of fibres is a mixture of well-decayed stable manure and bog or peat; this worked in liberal quantities into the soil as the work of planting proceeds will keep the roots moist, which is important, especially for young plants. I prefer the months of April or May for planting, but I am guided generally by the weather. We are unable to plant in this locality (Cheshire) at present, as the cutting easterly winds are very severe. I prefer moist weather for transplanting Hollies, no matter what time of the year it be. There are now in this neighbourhood splendid Holly hedges which I planted in a moist July.

In suburban districts many Holly hedges are planted in the front of villa gardens. I have seen hundreds of plants killed by injudicious planting in such positions. Villa gardens of the class I refer to have usually at the front a small stone wall about 3 feet high. The border is made to slope from the level ground to within a few inches of the top of the wall, and the Holly hedge is planted so that it shows well above the wall; it is thus exposed to the wind, and is in danger of becoming dry at the roots. In such a position the wonder is that the plants live at all. Any danger from this cause is easily avoided by allowing the soil to come only within a foot of the top of the wall. The appearance at the outset is not so striking, but in a few seasons the gardener so planting will be gratified by seeing a well-established hedge. Immediately the hedge is planted the soil should be mulched with manure or tan to keep the roots moist. If very dry weather follow the planting the hedge will be benefited by a thorough watering. Gentlemen who have established Holly hedges which are doing badly will find it a good plan to dig well to the roots and work in a liberal quantity of good manure. If care be taken that the roots are not injured the hedge will be found to make a great improvement in a very short time. During the late severe weather Hollies have suffered in many neighbourhoods; it may, therefore, be of use to some to say that when a Holly loses its leaves through frost it is regarded as a good sign, for the plant will in all probability break out into growth when genial weather comes. The mode of procedure mentioned above I have found to be most successful, and the experience which I have pleasure in presenting to the readers of the Journal has been gained over a long period and by many failures and many successes.—VINDEK.

**POTTING CHRYSANTHEMUMS.**—Mr. Brotherston remarked some time since that he gives preference for large pots for the sake of economising labour in watering. Those who wish to grow Chrysanthemums well must not be afraid of such labour, or they had better not attempt the culture. It is not advisable to use larger pots than really are required for the well-being of the plants. Large pots are not required to grow good Chrysanthemums in,

and are rather a disadvantage than otherwise. I may remind Mr. Brotherston that the best blooms I have ever seen produced are not grown from plants in large pots. I do not agree with the advice given in relation to potting. If plants are placed in 5-inch pots at the beginning of April they will grow freely, soon fill their pots with roots, and become root-bound before the beginning or middle of June, then if finally potted into 13-inch pots, they have a shift of 8 inches, which I contend is too large even for a free-growing plant like the Chrysanthemum, especially if the roots have become seriously matted in 5-inch pots.—WM. BARDNEY.



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Major F. Mason in the chair, the following candidates were elected Fellows—viz., Edward H. Allen, Mr. G. C. Armstrong, Mrs. Hope Barton, Lady Cardross, Miss Emma T. D'Eyncourt, the Hon. Hubert Dormer, The Hon. Mrs. Hubert Dormer, John Henderson, Mr. Francis Hornby, Mrs. Little, Miss Lock, Miss Mallard, Henry H. Moore, Frederick A. Mullett, Wilfred Nicholson, the Hon. Mrs. T. Preston, George Russell, Joseph Seel, Mrs. Louisa P. Stevenson, Frank C. Stileman, Mrs. Frederick Streatfield, Frank Whitlock, Major-Gen. F. L. Whitmore, Samuel J. Wilde, Major Woodhouse, and Mr. W. Parkinson Wright.

— AFTER a term of unusually COLD WEATHER—keen easterly winds blowing almost a hurricane night and day for weeks, arresting the growth of vegetation and jeopardising newly planted shrubs—a favourable change occurred in the metropolitan district on Tuesday last, accompanied by a gentle and refreshing shower. From the beginning of March to the 12th inst. only about three-quarters of an inch of rain fell in London; during the corresponding period of last year the amount exceeded 1½ inch. The weather has at least been favourable for drying the land, hundreds of acres of which were not long ago submerged, and for expediting the working of the ground in fields and gardens. In the north of England and Scotland the weather obstacles have been more serious, for during much of the time the ground was dry and in good condition in the south it was deeply covered with snow in the north, which lingers yet in shaded places. Fruit blossoms are late, and on the whole, in the south at least, the late term of cold may possibly in the end prove more beneficial than injurious.

— WE may remind our readers that the Southern Show of the NATIONAL AURICULA SOCIETY will be held in the Royal Horticultural Society's Gardens, South Kensington, on Tuesday next April the 19th, when prizes will be offered in the customary classes, and a satisfactory display is expected. Mr. George Smith of Edmonton will offer three special prizes for the best plant of Polyanthus Smith's Duke of Wellington. An interesting feature of the meeting will be the delivery of a lecture on the Auricula by the Rev. F. D. Horner of Kirkby Malzeard, who has so often enriched our columns with notes on the flower of which he is such a skilled cultivator and ardent patron. We also learn that the Northern Show will be held on April the 26th in the New Town Hall, Manchester, when Auriculas and Polyanthus will be similarly well provided for.

— "D., Deal," writes to us as follows on the CARDIFF ROSE SOCIETY—"The interest that the Rose excites amongst us does not seem to be on the wane, if one may judge amongst other things from the number of new societies which are starting up. The last of these is Cardiff, and one can easily imagine that from its position, its contiguity to Hereford, and the patronage which



it is likely to command, that it ought to be a success. They have made a good start, have obtained the services of that able gardener Mr. A. Pettigrew as their Honorary Secretary, have issued a schedule amounting to £80 in prizes, and have already affiliated themselves with the National Rose Society. The Marquis of Bute has given the Society his patronage, and offers prizes of £5 and £3 for the best boxes of York-and-Lancaster Roses; while the Mayor gives a prize of £2 for the best boxes of Moss Roses, and a Mr. Ware for the best box of the old Cabbage Rose. There are prizes open for general competition as well as for local growers. The Exhibition will be held in the Drill Hall, and with such a start success is well nigh assured."

— MR. W. IGGULDEN sends the following from a letter he has received upon TOMATO CULTURE—"I think the proper cultivation of this delicious fruit-vegetable is far too little known. The taste for Tomatoes seems to be an acquired one, most people having an aversion from them at first. I am exceedingly fond of them both cooked and uncooked, and as a medical man I consider them most wholesome. I grow them largely in pots under glass, and found them infinitely better as regards flavour grown in this way than when in borders even under glass. The most delicious variety I consider is Earley's Defiance, next to this Hathaway's Excelsior. The Trophy makes a capital third, as does Jackson's Favourite—a very large-fruited variety of fine flavour. For a grand crop I have found, so far, no variety to equal the Orange-field Dwarf. From two plants of this in an 11-inch pot I cut seventy-two fruits, some very large."

— IN reference to the PROPOSED INTERNATIONAL FLOWER SHOW AT EDINBURGH, the *Scotsman* states that "a meeting of the Committee of the Caledonian Horticultural Society charged with promoting the International Show which it is proposed to be held in Edinburgh on the 15th and 16th September, 1882, was recently held in the Waverley Market—Professor Balfour in the chair. After discussion it was agreed to appoint a Sub-Committee to draw up a circular, and send it to patrons of horticulture and others interested in it both in the United Kingdom and the Continent, asking their co-operation and support in forwarding the object which the Committee have in view. A considerable amount was subscribed at the meeting as the nucleus of a prize fund; and from present appearances there is every reason to hope that the arrangements for the Show may be carried to a successful issue."

— WE some time ago received from Mr. Miles of Wycombe Abbey a portion of the new PINE APPLE LORD CARRINGTON, a variety which had been certificated by the Fruit Committee of the Royal Horticultural Society a year ago. That which Mr. Miles sent us was even richer and more highly flavoured than the fruit which was exhibited at South Kensington; and what struck us more especially was the fine aroma which seems to be peculiar to this variety. This is no doubt a fruit of the highest excellence, and our note upon it was made at the time when it was received, although delay has occurred in publishing it.

— THE usefulness and beauty of TROPÆOLUM BALL OF FIRE as a winter-flowering plant in a warm greenhouse or any other structure with a similar temperature, is admirably shown at Nonsuch Park, Cheam, the seat of W. R. G. Farmer, Esq. In one of the plant houses there two specimens of this Tropæolum are trained up each side of the doorway and over a portion of the roof, and at the time of a recent visit they were bearing so many hundreds of flowers that the term a "mass of blooms" seemed the only one applicable. They have been in a similarly fine condition since last October, and Mr. Sillence the gardener has found the supply of flowers obtained from them of inestimable value during the duller months of the year. The plants are growing in good turfy loam, and when they become slightly

exhausted from the continuous flowering the pots were placed in pairs of partially decomposed manure, into which the roots rapidly extended, thus again increasing the vigour of the plants.

— THE following GARDENING APPOINTMENTS are announced—Mr. Thomas Nutting, late gardener to Richard C. Naylor, Esq., Kelmarsh Hall, Northampton, succeeds Mr. G. Eldridge as gardener to Henry Hall, Esq., Manor House, Alton, Hants; Mr. George Jordan, late of Westbrook, Hemel Hempstead, has been appointed gardener to Rev. H. Bermens, Harkstead Rectory, Suffolk; Mr. James Galbraith, late gardener to Sir Wm. Parker, Bart., Melford Hall, Sudbury, becomes gardener to Wm. F. Faviell, Esq., Down Place, near Guildford; Mr. Edwin Tame, late gardener to Col. James, Igtham Court, near Sevenoaks, succeeds the late Mr. Blaides as gardener to J. E. Sanders, Esq., North Sandsfield, Gainsborough; Mr. George Roberts, late of Peter-sham House, near Richmond, becomes gardener to Lord Teynham, Tower House, Shooter's Hill; Mr. J. Taylor, late gardener at Isel Hall, has been appointed gardener to F. J. Reed, Esq., Hassness, Cockermouth, Cumberland; and Mr. William Sowards, late foreman at Castle Hill, Southmolton, succeeds Mr. James Shale as gardener at Creedy Park, Crediton, South Devon.

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on the 20th inst. at 7 P.M., the following papers will be read—"On the Frequency and Duration of Rain," by Dr. Wladimir Köppen; "Results of Experiments Made at the Kew Observatory with Bogen's and George's Barometers," by G. M. Whipple, B.Sc., F.R.A.S., F.M.S.; "On a Discussion of Mr. Eaton's Table of the Barometrie Height at London, with Regard to Periodicity," by G. M. Whipple, B.Sc., F.R.A.S., F.M.S.

## ROYAL HORTICULTURAL SOCIETY.

APRIL 12TH.

THE meeting on this occasion was not characterised by any very remarkable features, though the exhibits both in the Council-room and in the conservatory were sufficiently numerous to impart much interest to the gathering. This was still further enhanced by a lecture by the Rev. G. Henslow on Daffodils, and the performance of a selection of music by the band of the Royal Horse Guards.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Mr. T. Bonsall, The Gardens, Campsmead, Doncaster, sent a dish of Improved Keeping Onion. Mr. J. Wallis, Keele Hall Gardens, Newcastle, Staffs., sent three bunches of old Grapes, consisting of Gros Colman, Black Alicante, and Lady Downe's, to which a cultural commendation was awarded. Mr. Buchanan, gardener to Dr. Siemens, Sherwood, Tonbridge Wells, sent a splendid bunch of fruit of Musa Cavendishi weighing 74 lbs., and grown as stated under the influence of the electric light. The Committee were of opinion that it was a very fine specimen of the fruit, and awarded a cultural commendation, while they referred the scientific question to the Scientific Committee. Mr. W. Bowell, gardener to Lady Parker, Stawell House, Richmond, Surrey, exhibited a fine bunch of Loquat, the fruit of which was quite ripe, and pronounced to be the finest flavoured ever exhibited before them.

FLORAL COMMITTEE.—J. McIntosh, Esq., in the chair. Among the exhibits in the Council-room the first to be noticed was a group of new and rare plants from Messrs. James Veitch & Sons of Chelsea. A cultural commendation was awarded for a specimen of *Cattleya Mendelii* superbissima with half a dozen flowers. This is one of the finest varieties in cultivation, the petals being very broad, white, with a faint purple tinge; the lip large, rich crimson, and beautifully fringed. A peculiar Japanese shrub, *Corylopsis spicata*, was also shown with spikes of small yellowish flowers on leafless branches. Mr. H. Cannell, Swanley, contributed several collections of Zonal Pelargonium blooms in excellent condition, extremely bright and well selected. Among the scarlet single varieties especially noticeable were the following:—Col. Seely, Mrs. Newdegate, J. B. Miller, Rigoletto, Tom Bowling, General Grant, Commander in Chief, and Lizzie Brooks. The best pinks were Mrs. Strutt, Louisa, Lady Sheffield, and Olive Carr. The best white was Eureka, recently certificated. Many good double varieties were also shown. Double named Cinerarias were represented by several varieties, among which Kate, full pink; Phoebe, purple, very large, and globular; and Mr. T. Lloyd, deep purple, were especially notable. The hose-in-hose and spotted Mimulus Beauty of Sutton was shown, with flowers of the old Cineraria cruenta and Silver Star Marguerites, the latter

extremely fine and pure white, attracting much attention. Mr. Bull, Chelsea, sent several new plants and *Sarracenias*, two specimens of *S. Drummondii* bearing over a dozen flowers each of very deep colour. *Azalea balsamiflora* was also shown very well flowered. It is an extremely neat variety, the flower being of moderate size but of excellent form, and rosy salmon in colour. It is also very floriferous. A very distinct *Dracaena* named *D. Lindenii* was shown with leaves 3 or 4 inches broad, striped with two shades of green, a dark band in the centre, and lighter on each side.

Mr. B. S. Williams, Upper Holloway, London, sent specimen plants raised from their selected strain of double *Cineraria* seed. They were generally of compact habit; the flower neat in form, full, and brightly coloured, especially the purple and crimson forms. Mr. J. Speed, gardener to the Duke of Devonshire, Chatsworth, was accorded a vote of thanks for flowers of the remarkable *Amherstia nobilis*, for which Chatsworth is noted. The flowers are orange scarlet in colour, three of the petals being tipped with yellow, and they are borne on pedicels 2 or 3 inches long in racemes of a dozen or more. Mr. J. Guyett, gardener to Mrs. J. Perrett, Lynton House, Clapham Common, was accorded a vote of thanks for several heads of *Rhododendron Nuttallii*, each bearing four to six enormous flowers, some exceeding 6 inches in diameter, and possessing an extremely rich fragrance. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, sent a plant of *Pinguicula valisnerifolia* with violet purple flowers and a whitish eye. Mr. J. Wilkinson, gardener to Viscount Gage, Firs Place, Lewes, was accorded a similar recognition for a group of seedling plants of *Anthurium Schertzerianum*, some with very large spathes and brightly coloured. Mr. W. Carmichael, The Gardens, Nowton Court, Bury St. Edmunds, sent two *Azaleas*—one named *D. T. Fish*, with extremely large pale salmon and crimson-tinted flowers over 4 inches in diameter and of good shape; the other, named Mrs. Wills, was one of the *amœna* section, the flowers being extremely dark crimson. Mr. G. F. Wilson, Weybridge, was accorded a vote of thanks for a collection of seedling Primroses in fine condition.

Mr. G. Smith, New Villa, Hedge Lane, Edmonton, exhibited plants of two seedling Polyanthus, one named Byron and the other Nelson, both good gold-laced varieties, the flowers of fairly good form, and the ground colour dark maroon. Mr. R. Dean, Ealing, exhibited several beautiful hardy Primroses and Polyanthus. Primrose Beatrice, with bright purplish lilac flowers, was especially noticeable. Votes of thanks were also accorded to Sir Charles Strickland, Bart., for a specimen of *Cattleya citrina* growing on a block, and to Col. Clarke for a species of *Hippocastrium* with small bright scarlet flowers.

In the conservatory there was a pleasing and bright display of plants, occupying one side of the central path and forming a fine bank, the arrangement generally being very tasteful. Messrs. Veitch and Sons staged a group of Roses in pots, all in excellent health, and the flowers fine for the season. The specimens in the best condition as regards the number of flowers were Dupuy Jamain, Madame Lacharme, and Beauty of Waltham. Plants of the early-flowering *Magnolia stellata* were also shown, with a basket of the dwarf *Primula pubescens*, and several *Amaryllises*. A gold medal was awarded. Mr. B. S. Williams was awarded a silver-gilt Flora medal for a large and handsome group of Orchids in excellent condition. Especially notable were good specimens of *Odontoglossum vexillarium*, *Dendrobium chrysotoxum*, *D. Dalhousianum*, and *D. nobile*. *Cattleya Trianae nivea*, a pure white variety, was also notable, with many choice and beautiful species. Messrs. Barr & Sugden obtained a silver-gilt Flora medal for a fine group of Daffodils, comprising about sixty varieties, some extremely choice, and all more or less beautiful. A silver Banksian medal was awarded to Mr. J. Aldous, Gloucester Road, for a tasteful group of flowering and fine-foliaged plants, chiefly *Azaleas*, *Spiræas*, *Roses*, *Lilies of the Valley*, *Palms*, and variegated *Maples*. Messrs. H. Lane & Sons, Great Berkhamstead, exhibited a group of *Rhododendrons* in pots, the central plant being a specimen of the variety *Snowflake*, bearing about three dozen trusses of white flowers; several other good varieties were also shown, and a large group of *Roses* was also contributed, for which a gold medal was awarded. A group of *Dielytras* and *Cinerarias*, with several *Primulas*, was sent from the Society's gardens, and Messrs. Smith and Larke, Kensington, sent several wreaths and crosses of white flowers tastefully arranged.

First-class certificates were awarded for the following plants:—

*Gymnogramma schizophylla* (Veitch).—This elegant little Fern, of which we gave an engraving last week, was again deservedly honoured with a certificate. The specimen possessed the chief characters of the plant well developed, both the proliferousness and the branching of the fronds being shown.

*Adiantum monochlamys* (Veitch).—An elegant Japanese species, somewhat suggestive of *A. assimile*. The fronds are bipinnate, with triangular light green pinnules, each having the outer margin distinctly notched. The habit of the plant is graceful.

*Dioscorea retusa* (Veitch).—This plant has now been in cultivation several years, and has been previously awarded a botanical certificate. It is, however, very graceful, and merited the recognition it has now received. It is of climbing habit, with dark green digitate leaves and numerous spikes of small white flowers in dense clusters, which are pendulous from the axils of the leaves. When trained on a trellis of some kind, so that these clusters can be easily seen, the appearance of the plant is very graceful. The plant was figured in this Journal several years ago. See vol. xxxi., page 168.

*Omphalodes Kramerii* (Veitch).—A pretty little Japanese herbaceous plant, with lanceolate leaves 4 to 5 inches long and 1 to 2 broad. The flowers about the size of a large *Myosotis dissitiflora*, bright blue, and borne in racemes 6 inches in height. The specimen had been grown in a frame, but would probably prove hardy in sheltered positions.

*Ivy-leaved Pelargonium Anna Pfitzer* (Cannell).—Many members of the Floral Committee considered this the most interesting plant shown on this occasion. It is a variety with fine double soft pink flowers 2 inches in diameter and of good form. The trusses are large and compact, some bearing nine or ten flowers, and the habit of the plant is dwarf. The leaves are deep green and of the usual Ivy-like form characterising this section.

*Cœlogyne cristata alba* (Bull).—A pure white-flowered variety of *Cœlogyne cristata*, exactly resembling the one for which Mr. Richards of Leeds obtained a certificate at the last Exhibition of the Royal Botanic Society.

*Pinguicula Bakeriana*.—A specimen of this very distinct Butterwort was shown by Messrs. F. Sander & Co., St. Albans, who were accorded a first-class certificate for it. It has small, fleshy, spatulate or ovate leaves in a dense rosette, very much like some of the *Sempervivums*. The flowers are borne singly on peduncles 8 or 9 inches high; they are about 1½ inch in diameter, of a rich crimson colour, darker towards the centre, and with a white throat, which relieves the deep colour of the petals. All the characters of the plant shown correspond with those of *Pinguicula caudata* now flowering in the porch of the Orchid house at Kew, where it succeeds under similar cool treatment to that afforded other species of the genus.

*Primrose Amaranth* (Dean).—A pretty variety, with large well-formed flowers, deep crimson in colour shading to maroon, and with a rich yellow eye. The plant was flowering very freely.

SCIENTIFIC COMMITTEE.—*Galls on Artemisia*?—Mr. Pascoe exhibited a specimen from the Sahara, somewhat resembling the woolly gall on *Veronica chamædrys*, of an unknown insect, but the plant resembling an *Artemisia* could not be determined.

*Canker on Apple Wood*.—Dr. Masters exhibited a specimen to elicit opinion as to the cause. Dr. Hogg attributed it to frost, observing that water would often settle in the axils, form ice there, which then destroyed the tissues. Trees which were of a more delicate nature, such as Newtown and Ribston Pippins, were more subject to it than others. If the roots of such trees reached a cold damp soil similar results followed, the general previous condition being an unripeness of the wood which leads to canker. *Hyacinth Bulbs attacked by Acari*.—He showed some bulbs with these insects, but they were regarded only as a consequence and not the cause of the decaying state of the bulb. *Viridescence of Primula sinensis*.—He exhibited an umbel of which every flower consisted of a ball-like mass of green leaves. *Sarracenia*.—He showed a blossom in which the exterior surface of the foliaceous stigma produced folds and tubular outgrowths not infrequent in Cabbage leaves. *Potato Disease*.—He exhibited leaves from a correspondent taken from plants in frames; five kinds were attacked, and the earliest sorts took it last.

*Nolina georgiana* was exhibited by Mr. Elwes, it being the first occasion of its flowering in England. It is a native of the coast of Carolina. Its blossoms resemble a Squill, but with the foliage of *Bomarea*. Cattle are said to eat it greedily, hence it is called Buffalo Grass. He also exhibited a Tulip from the Elbury Mountains near to T. violacea, but with the colour of T. saxatilis, which moreover possesses broad shiny foliage. He also showed *Tulipa iliensis*, allied to T. sylvestris. Mr. Elwes remarked upon the rapid changes which Tulips undergo under cultivation, not merely in the glabrous or downy filaments but in the shape of the stigmas, &c. He commented on the growth of *Arisæma speciosa*, an Aroid from Sikkim. The spadix bears a long filiform appendage. This latter is always found wrapped up in the terminal part of the leaf long before the spathe unfolds.

*Boronia megastigma*.—Messrs. Veitch exhibited plants bearing pale as well as dark-coloured blossoms on the same stem. A discussion arose as to the possible interpretation of this—that it might be the first step towards self-fertilisation.

Dr. Siemens exhibited a bunch of green Bananas from a tree which was only 18 inches high in March, 1880, but had had the benefit of the electric light for the first three months at night. During the summer it had only sunlight, but for the last six or eight weeks the electric light had again been employed at night. The benefit appeared to be due to starting the growth last spring.

Col. Clarke exhibited specimens of Cowslip, Oxlip, and *Primula acaulis*, which seems often to simulate both the others. Mr. G. Bunyard exhibited specimens of the *Mezereon* with tumour-like growths on the stems and roots. They were too old to pronounce as to the cause, whether it be hypertrophy of the bark or of a fungoid character. He also sent flowers of a *Polyanthus* with the petals separate. Rev. G. Henslow exhibited some resin-like inspissated sap from the Alder, from Lord Lytton's Park, Knebworth.

LECTURE.—The Rev. G. Henslow took the Narcissus as the subject for his lecture, there being a fine display from Messrs. Barr & Sugden's nurseries. He drew attention to the characters of the family *Amaryllidaceæ*, to which the genus belongs, and pointed out the sole distinction between it and the Lily family (*Liliaceæ*), that in the latter the ovary is free from the tube of the perianth, whereas the latter organ was adherent to it in *Amaryllids*—it thus becomes



inferior, or apparently below the perianth. Taking *Narcissus* as a typical genus he described the five sections into which it is divided. 1, *Ajax*, which includes the Daffodil, with its very long corona, and having the filaments of the stamens adherent very low down; 2, *Ganymedes*, with a drooping *Cyclamen*-like habit, and reflexed limb, as *N. triandrus*; 3, *Hermione* or *Polyanthus Narcissus*, with its slender tube and shallow corona, such as *N. Tazetta*, which is naturalised at St. Michael's Mount, and flowers three months earlier than near London; 4, *Queltia*, with a sub-cylindrical tube and short corona; and lastly the true forms of *Narcissus*, as *N. poeticus*, with the tube widening at the mouth, &c. Several other genera, such as *Pan-*

*tium* and *Ismene*, have coronas, but it is not characteristic of the majority of genera in the order. It has been regarded as an abortive whorl of stamens, inasmuch as it sometimes bore supernumerary anthers.

The family *Amaryllidaceæ* is represented by three genera in Great Britain—the Daffodil, the Snowflake, and Snowdrop, the two last having free segments to the perianth and no corona. In comparing *Amaryllids* with the *Lily* family, the Daffodil with coherent lobes may be paralleled with the *Hyacinth* and *Lily of the Valley*, while the Snowdrop and *Amaryllis*, with free lobes, would compare with the *Tulip* and *Star of Bethlehem*. With regard to the distribution of

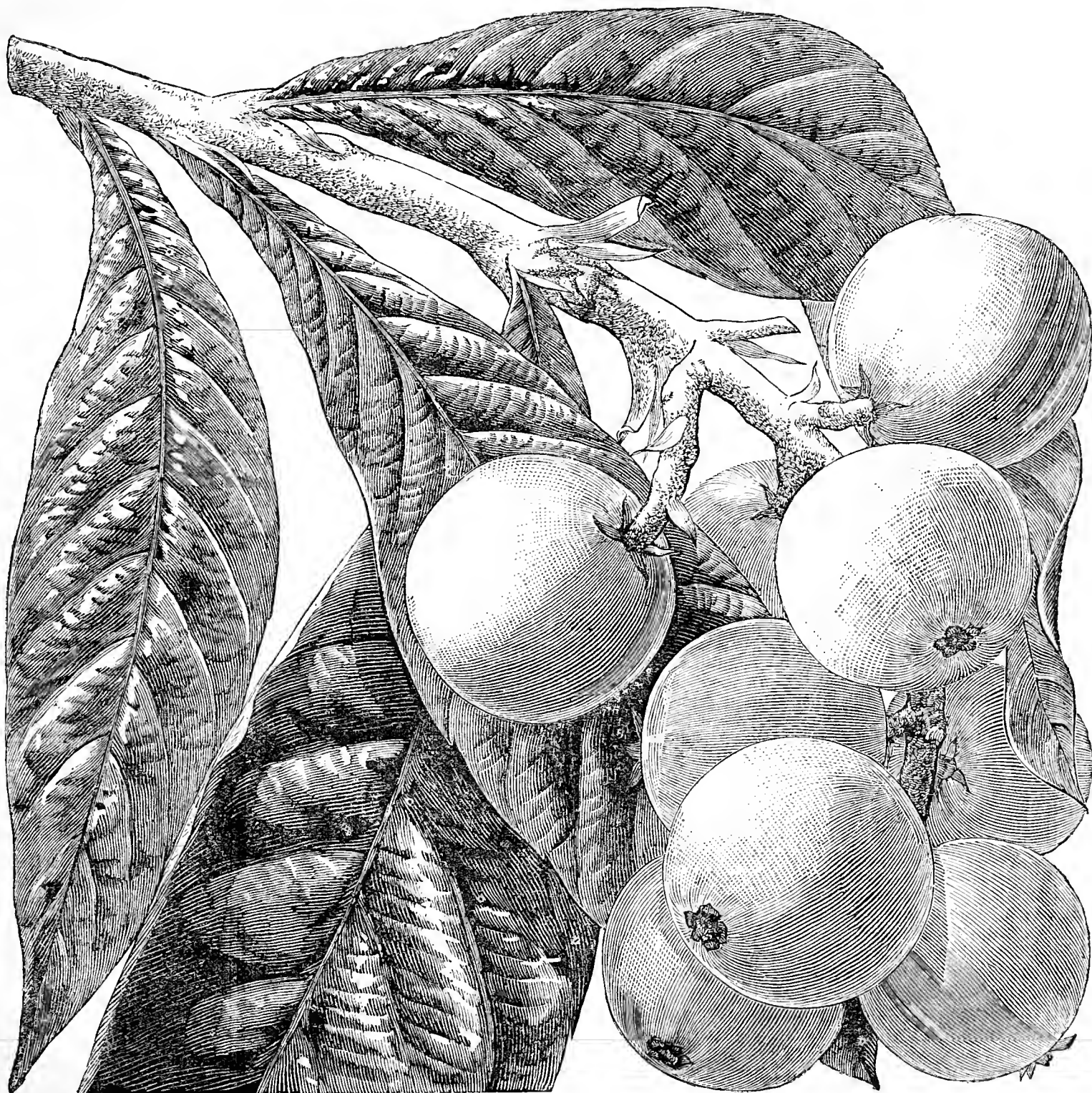


Fig. 70.—*ERIOBOTRYA JAPONICA* (THE LOQUAT). See page 298.

the *Amaryllids*, *Narcissus* and *Galanthus* (Snowdrop) represented the family in temperate regions. *Pancreatum* first appeared on the borders of the Mediterranean, *Crinums* and *Pancreatiums* abounded in the West and East Indies, *Hippeastrums* were numerous in Brazil and South America; but the greatest number is at the Cape of Good Hope, such as *Hæmanthus*, *Crinum*, *Clivia*, *Brunsvigia*, and *Amaryllis*. With regard to the properties of the family, acrid, narcotic, poisonous principles occur. The Daffodil is narcotic in small doses, while large doses of the petals are poisonous. *Pancreatum maritimum* has the same properties as, and is substituted for, the Squill, a bulbous plant of the *Lily* family, which also occurs in the Mediterranean region. *Hæmanthus toxicarius* of South Africa is intensely poisonous. The

Kaffirs use the juice with the venom of snakes and the milky juice of *Euphorbia* for an arrow poison. Similarly, *Crinum zeylanicum* is violently poisonous. On the other hand an arrowroot or starch is extracted from the bulbs of *Alströmeria pallida*, &c., in Chili. One of the most useful of this family is *Agave americana* of Mexico, miscalled the American Aloe. The true Aloes are African plants, much resembling the above, but belonging to the *Lily* family. The American Aloe blossoms once within a hundred years and then dies, producing a flowering stem sometimes 40 feet high, and bearing three thousand blossoms. In Mexico the stem is tapped, the juice collected and allowed to ferment. It then forms a kind of beer called pulque. A very intoxicating spirit is also made from it by distillation. The juice



contains both oil and an alkali, and so forms a substitute for soap with water. It is thus used in Portugal and Spain, as the American Aloe is much grown in South Europe. The flower stem cut vertically makes a good razor strop, in consequence of the silicious particles it contains; while the fibre of the leaves is of considerable value, and is called Pita. Lastly, cattle are fed on the bruised leaves in dry seasons.

### THE LOQUAT.

FRUIT CULTURE both under glass and in the open air receives much attention in England, yet though the varieties of the fruits already established in gardens are being continually increased, few efforts are made in a systematic manner to extend the number of distinct kinds in use. With the exception of Bananas there have been scarcely any general additions to the ordinary fruits from under glass. The edible Passifloras, such as *P. edulis* and *P. quadrangularis*, have also been tried, but by no means extensively, and the same may be said of the *Eugenia Ugni*, which some years ago was brought prominently into notice, but is now comparatively neglected. Many other famed tropical and sub-tropical fruits might be mentioned which are grown in a few establishments more as curiosities than for any practical purpose, and yet there is little doubt that if more attention were paid to them satisfactory results would be obtained, and many a dish of novel and richly flavoured fruits could be added to the dessert, which are either now quite unrepresented or are obtained from importers, such fruits being usually deficient in their most gratifying characteristics. It is only in the largest establishments where such could be grown at all extensively, but there are few gardens in which some could not be tried with little additional trouble and expense. Difficulties invariably attend the early efforts in cultivating foreign plants of any kind, and perhaps in most instances it is less easy to obtain fruit-bearing exotics in satisfactory condition than it is to grow good specimens of plants that are chiefly noted for their ornamental foliage or beautiful flowers, yet it has been more than once proved by energetic and skilful gardeners that such difficulties can be overcome. There are few if any such fruits which could be profitably grown for sale or as a main crop in gardens in this climate, nor is it likely that they will ever be extensively tried with that object, but as an occasional and welcome novelty for the table they might receive more attention than is at present accorded them.

One of these neglected fruits is the Loquat, the *Eriobotrya japonica* of botanists, which, though known in this country for nearly one hundred years, generally admired for its handsome foliage and famed for its fruit, has been rarely grown except as an ornamental tree or shrub in the open air or in glass structures. Partly owing to this, and partly to the season at which the flowers are produced, fruit has been rarely ripened even under glass, and still more rarely out of doors, so that much interest is attached to any instance in which it has been matured under either of those conditions. The most recent recorded occurrence of the fruiting was that noted a week or two ago on page 255 of this Journal, where it is stated that a specimen of the Loquat was then bearing fruit in the garden of the late Sir Henry Watson Parker at Stawell House, Richmond, Surrey, now the residence of Lady Parker. By the liberality of the owner the public were permitted to inspect this specimen, and many persons availed themselves of the privilege. The tree is 9 or 10 feet high, in a pot about 14 inches in diameter, and it bore a dozen bunches of eight or ten fruits each at the ends of the branches, where the long rich dark green leaves were clustered as they usually are in specimens of moderate size. The tree had been previously in a stove, where it flowered in late autumn last year; and having received careful attention a crop of fruits was set which gradually advanced to about the size of Apricots, and became fully ripe towards the end of March, then assuming a fine orange tint. They were not only larger than many we have seen, but possessed a much richer flavour than any we have previously tasted. As they each contained a single seed, it is probable the variety is that referred to by Fortune as the one most highly valued by the natives of China and Japan. There is a great difference in the quality of the varieties, some being comparatively worthless; and wherever this or any other foreign fruit is intended to be grown, a point of great importance which is frequently overlooked is the selection of the variety. The great defect in most of the fruits of the Loquat which are occasionally seen in the metropolitan markets is their insipidity or even unpleasant flavour, due probably to their having been gathered in an unripened condition; but were all as fine as those grown at Stawell House there would soon be a demand for them in this country. The engraving on page 297, prepared from a specimen kindly sent by Lady Parker, represents one of the clusters of fruit the full size, and conveys a very good idea of the fruit which, as we have remarked, is a pale orange tint

on the surface and slightly downy. It is extremely juicy, and possesses a sweet, rich, sub-acid, vinous flavour quite distinct from any other fruit.

A brief review of the history of the Loquat may not be devoid of interest to some readers now the tree is under consideration. The species is a native of Japan and China, where it was found by Kämpfer towards the close of the seventeenth century, and described by him under the name of *Mespilus japonica*. Many years subsequently the plant was more fully described by Thunberg under the same name, and a drawing was also published with that author's "*Flora Japonica*." In 1784 it first appeared in Europe, living specimens being imported by the French and transferred to the National Garden at Paris, and two or three years later Sir Joseph Banks obtained some plants from Canton and consigned them to the Royal Gardens, Kew, thus introducing the plant to English cultivators. The stock appears to have been gradually increased by propagation and probably by subsequent importations, and early in the present century it was represented in many gardens. Since then it has become generally distributed, and is now by no means rare, especially in the southern counties, where it thrives against walls in the open air, and is rarely injured except by very severe frosts, such as we have experienced during the past winter. The first record we have of a tree producing fruits in England occurs in the third volume of the Horticultural Society's Transactions, published in 1822. A letter is there printed from Lord Bagot of Blythfield, Staffordshire, which was read before the Society in 1819, and recounts the fruiting of a tree in one of his lordship's houses. Fruits were produced during several years, generally of very fine quality and extremely numerous, as many as twenty-one having been borne on one branch. The method adopted was to place the trees out of doors during the summer, removing them to a warm tan bed in September. The flowers generally expanded in December, and the fruit was ripe by April. But on one exceptional occasion the flowers appeared in early summer. From that time until the present there have been few records of the production of fruit under glass. Loudon mentions one or two instances, and others have been noticed at wide intervals, but it is still an event of considerable interest. There are scarcely any well authenticated instances of trees maturing fruit out of doors in England, though in the south of France, Malta, and neighbouring regions it is produced in great freedom.

At the recent meeting of the Royal Horticultural Society Mr. Howell, the gardener at Stawell House, exhibited fruits from the Loquat referred to here, and was awarded a cultural commendation for them, the Committee being of opinion that they were the best flavoured ever submitted to their inspection.



### HARDY FRUIT GARDEN.

THE cold wintery weather which has been prevalent now for some weeks has considerably retarded the flowering of the Apricot and the advance of other fruit trees in a corresponding degree; indeed the blooming is likely to be a month later than it usually is, which augurs well for the fruit crop. Frosts may even in May yet occur to destroy the blossom and tender fruit, but it rarely happens that frosts after the middle of April are sufficiently severe to injure the fruit crop, particularly if a slight protection be afforded. Apricots in flower should have efficient protection; coverings that can be readily fixed and withdrawn are the most suitable, as the trees cannot be too fully exposed to light. Peach, Nectarine, and Plum trees, as they come into bloom should also be protected. The flowers of the Pear and Cherry should have similar attention. All necessary grafting should now be completed as quickly as possible, but owing to the unusual coldness of the weather fruit trees and stocks are only now beginning to grow freely. Fork over the soil of fruit tree borders to the depth of about 2 inches, as a loose surface admits of the freer admission of rain and air.

### FRUIT HOUSES.

*Peaches and Nectarines.*—In the earliest forced house the fruits should be finally thinned, retaining one fruit to every square foot of

trellis covered with foliage. If it be desired to accelerate the ripening of the fruit the night temperature may be maintained at 65° to 70°, 75° to 80° in the daytime, and 85° to 90° with sun heat, closing at 80° with plenty of moisture in the house. It is much better, however, for the future well-being of the trees to finish off the fruit in a temperature of 60° to 65° at night and 70° to 75° by day, allowing an advance to 80° or 85° from sun heat, ventilating above 70°, and closing at 75°, and if the temperature then rises to 80° or 85° it will be an advantage. Peaches and Nectarines may be grown to a large size by maintaining during the last swelling a moist atmosphere and high temperature, but the fruit is not so good in colour and flavour as that ripened in a drier atmosphere and with better ventilation. If the trees are at all weakly give a good soaking with weak liquid manure at 75°, and mulch the inside border with short manure 2 to 3 inches thick. Syringe twice a day, and damp the house well before nightfall. When indications of ripening appear discontinue syringing the trees, but damp the house several times a day according to the weather. This will hardly be necessary as yet, except with such extremely early kinds as Early Beatrice, and where those are in the same house with Royal George, which is four to six weeks later, the syringing must still be continued. Train the shoots as necessary, and have the fruit as much exposed to the sun and air as possible. Trees in the house started at the new year must be syringed twice a day, watered whenever necessary at the roots, and have the shoots tied in as they grow. Maintain an equable temperature of about 60° at night or a few degrees less on cold nights, 60° to 65° by day in dull weather, and 70° to 75° from sun heat, ventilating above 65°. In the house started early in February disbudding has been completed, and the shoots will need to be heeled or tied down carefully at the base. The trees started early in March will require attention in disbudding, which should be done gradually, leaving a growth at the base of the current year's bearing wood to form next season's bearing wood, retaining a growth on a level with or above the fruit, pinching out its point at the third leaf unless required for extension. Trees extending should have growths left on last season's wood at 15 to 18 inches distance, and the shoots that are to form the branches should not be closer than 12 to 15 inches. Remove the smallest and badly placed fruit gradually. In late houses the fruits have set and the inside border must not lack moisture, damping the house in the early part of fine days and again in the afternoon and syringing twice a day. Fire heat will be necessary to maintain 45° by artificial means at night, or 5° less on cold nights, and 50° by day, above which ventilate freely. Fumigate upon the first attack of aphides, also for thrips, on two consecutive evenings, being careful to have the foliage dry. If syringing does not subdue red spider apply an insecticide.

*Figs.*—The fruit of the earliest forced trees in pots are now commencing to ripen, therefore cease syringing the trees. Increase the ventilation, as a circulation of rather dry warm air is essential to perfecting this fruit. Surface roots are of primary importance in the cultivation of fruit trees, especially of the Fig; and if a mulching of short manure was given at commencing forcing and it has been kept moist it will be full of active roots, and in the case of early-started trees will now require a liberal supply of water in a tepid state; or if the trees will bear it without becoming too luxuriant, weak liquid manure may be applied. Proceed with tying-in the shoots, leaving plenty of space in the ties for the swelling of the shoots.

*Nepenthes.*—These also may be repotted, or rather moved into larger pots if they require it; but there must not be any attempt at removing the old soil from the roots, for they are very tender, and have, even when healthy, the appearance of being dead. Employ the same compost as named below for *Sarracenias*, and drain the pots extra well, as they require very copious supplies of water during growth. Syringe overhead daily in the afternoon, and maintain a good moisture by damping available surfaces frequently. A temperature of 70° to 75° should be accorded them by artificial means, 10° to 15° more from sun heat.

*Sarracenias.*—These may now be potted, removing all the old soil as far as can be done without injuring the roots, using fibrous peat and chopped sphagnum in equal parts, with a sixth of potsherds and

a sprinkling of sand, and keep them liberally supplied with water at the roots. All the species do well in a winter temperature of 45° to 50°, and 10° or 15° more in summer as the weather may determine. They should be near the glass, and not be syringed much. The pots or pans may be half filled with drainage, keeping the shelves constantly moist.

*Greenhouses.*—Spring potting of *Aphellexis*, *Adenandras*, *Acrophyllum venosum*, *Chorozemas*, *Dracophyllum gracile*, *Eriostemons*, *Tremandras*, *Statice*, and other plants of a similar character should be completed as soon as possible, as the drier condition of the atmosphere later on makes it rather difficult to manage newly potted plants. Any hardwooded plants of which it is wished to retard the flowering should be removed to a house with a north aspect. *Plumbago capensis* is very useful for summer and autumn flowering, and should be grown in a light position. Plants in 6 to 8-inch pots are most serviceable, and any plants now in 6 or 7-inch pots should be cut well back, and when they have started transfer them to pots an inch larger, sandy loam with a little leaf soil suiting them well. Cuttings of double *Petunias* inserted now strike freely in gentle heat, and grown on will afford acceptable plants for decorative purposes later on. Plants in small pots should be shifted into a larger size, keeping cool and near the glass, stopping the shoots to induce a well-branched habit. *Fuchsias* should be kept in a temperature of 50° at night, this applying to both last year's struck plants and older required for early bloom. *Pelargoniums*, from the increased leaf growth and the pots being filled with roots, will need a little more water. Fumigate upon the first appearance of aphides. The late *Cinerarias* should be moved to a north house. They like a still moist atmosphere, as also do *Calceolarias*, both of which should be assisted with weak liquid manure.

*Conservatory.*—Remove all plants past their best and supply fresh, of which there will be a great number to make an effective display. Slight shade will be necessary for *Azaleas*, *Spiræas*, *Cytisuses*, and other plants in flower in the middle of the day, or they will continue but a short time. A strict look-out should be kept for insects, which now increase rapidly; and if allowed to get ahead are difficult to deal with in this structure, as the means of destruction by fumigation and washing are more objectionable in this than other plant structures. *Lily of the Valley* should after flowering be returned to a light airy house and be well supplied with liquid manure, keeping them there until the weather is mild, when they may be placed outdoors, but not before June, in an open situation, and they will ripen early and be again available for early forcing. *Deutzias* should be removed to a house where there is a moderately high temperature, as that of a vinery being forced, where they will be encouraged to produce fresh growth. Cut out all the present flowering wood down to the collar of the plant, which will induce them to produce strong shoots that when in flower have a better appearance than the formal plants resulting from the partial cutting-back system.

## NOTES ON VILLA AND SUBURBAN GARDENING.

### HOTBEDS.

*Cucumbers and Melons.*—From this time little difficulty will be experienced in forcing these. Telegraph is the most popular variety of Cucumber, and about five seeds may be sown in a well-drained 6-inch pot. The seedlings when in rough leaf to be carefully separated and potted singly into 4-inch pots, burying as much of the stems as possible, which will then emit roots. Employ light loamy soil previously warmed. The seed may be sown singly in 4-inch pots, allowing room for top-dressing as the plants become stronger. In either case and at all times the bottom heat should not be below 65° nor exceed 85°. To induce sturdiness keep the plants near the glass, pinching back the running growth to the second joint, and when fresh growth commences is the time to plant. A few days previous to planting, a bushel of soil, consisting if possible of two parts of turfy loam to one of well-decayed manure, should have been placed in a heap in the centre of each light. It is advisable if the heat of the bed be dangerously strong to place some turves grass downwards under the soil, and failing these some small drain pipes may be used: either will moderate the heat. Do not plant till the soil is found to be comfortably warm to the hand, as Cucumbers do

not quickly recover if burnt at the roots. Open the soil near the centre and lay in the plant in a sloping direction, slightly burying part of the stem. If placed in an upright position the young growth will snap off when the attempt to train it is made. If the frame is required to be filled quickly have two plants in each hillock, slanting them up and down the bed respectively. If the soil is moist no water will be required for some days, except that sprinkled about the bed on clear days when the frame is closed, and when it is eventually given it should be of the same temperature as the frame. Lightly shade from bright sunshine, ventilating slightly at the back only, and before the sun has gained much power, avoiding cold draughts, and closing early, say about 3 P.M. A little ventilation will be needed during the night should there be much steam in the beds. In the evenings either mats, strips of old carpet or matting, rough litter, or some available protecting material should be thrown over the frames, removing this early in the mornings.

The whole of the foregoing is applicable to Melons, with this difference—the Cucumbers delight in a rough turfy soil, whereas the loam obtained from beneath the turf is often found most suitable for Melons, and should be very firmly rammed about the roots at planting time. The collar of the plants must on no account be buried, as they are liable to damp off, especially if the bottom heat decline considerably. Victory of Bath is an easily grown green-fleshed variety, so also is the Earl of Beaconsfield. Turner's Scarlet Gem and Read's Hybrid are two good scarlet-fleshed varieties.

**Tomatoes.**—Seed should now be sown for the ordinary outdoor crops, and also, if a few are to be fruited in pots, in the forcing house or in a greenhouse. Employ well-drained 6-inch pots and light soil, sowing the seed thinly, covering lightly, and place the pots on a gentle hotbed. The seed will germinate readily; and to keep the seedlings sturdy thin them out if crowded, and have them near the glass. When the second leaves are formed pot the plants either singly in 4-inch pots or in pairs in 6-inch pots, sinking the stems to the seed leaves. Light moderately rich soil previously warmed should be employed, potting carefully to avoid bruising the tender plants. If moist soil be used no water will be required for a few days, but the plants must be kept in heat and shaded from bright sunshine till established. Those without the assistance of a hotbed may cover their seed pots with strips of glass and place them on a greenhouse shelf, shading from bright sunshine. Pot off the seedlings as advised for the preceding. Earley's Defiance and Hathaway's Excelsior are recommended for the outdoor crops, and Vick's Criterion and Conqueror for pots. Nisbet's Victoria, Queen of the Tomatoes, Red and Yellow Cherry, and Royal Cluster are small ornamental-fruited varieties suitable for small conservatories and greenhouses.

**Sowing Seeds of Bedding and other Plants.**—Seeds of *Lophospermum scandens*, *Cobaea scandens*, *Euclyptus globulus*, *Solanums*, *Coleus*; *Capsicums*, including Princess of Wales; *Chamaepeuce*, *Cineraria maritima*, *Perilla nankinensis*, *Abutilons*, *Amaranthus*, *Acacia lophantha*, and *Cannas* must be sown at once and placed in a brisk bottom heat. Light sandy soil is suitable, and the small seeds especially should not be buried deeply. If the *Acacia* and *Canna* seeds are placed in warm water till soft they will germinate quickly, but they should not be transferred to cold soil. A few days later the seeds of *Zea japonica*, *Ricinus*, *Tropæolums*, *Portulaccas*, *Asters*, *Stocks*, *Phloxes*, choice *Godetias*, and *Eschscholtzias*, *Marigolds*, annual *Chrysanthemums*, *Helichrysums*, *Linums*, *Balsams*, and other choice annuals may be sown. A strong heat will not be required for these. Pinch out the points of the bedding *Pelargoniums*, *Calceolarias*, and *Violas*, replanting or repotting when fresh growth commences.

## THE BEE-KEEPER.

### BEEES AND COB-NUT TREE POLLEN.

CAN any of your numerous correspondents tell me why bees do not appear to care for, or do not appear to be aware of the existence of immense quantities of pollen on Cob-nut trees during the latter end of February and nearly the whole of the month of

March? I have about three acres of Cob nuts, part of them just in front of my hives. I have frequently watched them, but scarcely ever saw them on the tail-like pendants of the male flower of the Cob-nut. One would almost think that in Kent artificial pollen would not be required during that period, as an acre of Cobs would almost supply half a bushel of pollen.—J. B. JACKSON.

### AMERICAN BEE JOURNAL.

#### FERTILISATION IN CONFINEMENT.

IN continuation of this subject from page 261, we pass a communication from "M. B.," who tells us he has made the "important discovery," and that in five trials he has had perfect success, because he is so cautious as to postpone an account of his *modus operandi*.

Mr. King Cramer seems to give us some further light, and points a line along which I purpose myself travelling this spring. He says—

"All the experiments that I have read of were made with a box or a barrel with a glass in the end of it. If a queen or a drone flies up and strikes that glass there will be no more mating that day. There is no better way to kill bees than to let them butt against a glass. Not only that, who can tell just the right time to take out the queen for confinement or mating? I at once saw that could not be practicable, and began some experiments, the results of which, together with the *modus operandi* of arriving at it, I purpose, with your consent, to lay before your readers.

"I took a frame of brood, with as many young bees as I could get, and put them in the second storey of a Langstroth hive, with a strong colony of bees in the lower storey in order to get their heat for the occupants of the upper storey, as the nights (about the 1st of September) were getting cold. Now we have a small swarm of bees in the upper storey, with the honey-board between the bees below and those above, and also a honey-board over the upper bees.

"On the second day they were there I gave them a queen-cell. In two days it hatched out. I then gave them ten or fifteen young drones. Now I had the queen, drones, and bees all confined in the upper storey of the hive. The bees were fed and watered every morning.

"The fertilising box is 2 feet high, and fits the hive on the top. It has a muslin cloth tacked over the upper end, and the lid of the hive over that.

"When the queen was three days old I made a small hole 3 inches long and half an inch wide in the honey-board, and took the lid off the cloth, when the young bees and the drones flew around within this box as if they were flying in and out of a hive. Every afternoon the lid was taken off the cloth two hours and then replaced.

"I have two queens in my apiary that mated by this process, and they were the only ones that I tried, as it was too late in the season to experiment further; but I can with safety say that by the end of another season there will be hundreds of queens mated by this process, and fertilising queens in confinement will be proclaimed a success."

We must all hope that his concluding remarks may be realised. Professor Cook writes very suggestively respecting the improvement of bees. He, of course, takes up the line that the struggle for existence has been Nature's method of development by allowing only the survival of the fittest. It is worth the attention of progressive bee-keepers, that in many hands Nature's operation is here being reversed. Several articles touch upon the question of the

#### ADULTERATION OF HONEY WITH GLUCOSE,

of which substance some of the writers speak with impassioned warmth. That adulteration with glucose is a base fraud which all good men must reprobate, needs no enforcement. The case is too strong to require any unscientific denunciation, and it is, therefore, unfortunate that some of these writers speak of glucose as "poisonous stuff," while others detail the "vile nature" of the acids used in its manufacture. This really does not reach the question. Glucose can be made from old rags, old paper (second-hand pawn tickets actually, at least sometimes, being employed thus), and, indeed, any form of cellulose or starch, Indian corn in America usually being the source, and by the action of sulphuric acid can be converted into a sugar which no chemistry, no palate, can distinguish from that taken from the most dainty bunch of Grapes. To refer, then, to its source is useless. It is equal to Grape sugar whatever its origin, and as an article of diet it has its value; but all this still leaves its use as an adulterant most disgraceful, and all should join hands in fearlessly doing our level best to get the right ticket put upon any man (and his wares) who descends to a practice which, if it does not lower him, wrongs all those who are striving to do honestly. Glucose, although chemically like a portion of honey, is altogether wanting in that which makes honey what it is. Its aroma, the delicate distillment from a thousand flowers inimitable and incommunicable alike are not there, and he who gives the one



for the other is as truly criminal as he who tenders knowingly a base coin. Let one of our cousins, Mr. L. H. Scudder, speak for himself.

"Let me caution you not to be too confident that even such prices can be obtained in the near future. Just note, if you please, how rapidly the manufacture of glucose is increasing; factories are being started in all parts of our country, enough are already in operation to consume five millions of bushels of corn annually in the west alone. Now when you take into consideration the fact that they obtain over three gallons per bushel of what they call 'glucose' or 'corn syrup' you will see that over fifteen million gallons annually are thrown upon our markets to be sold and used in various ways. But mark you, not one gallon is sold to the consumer by its proper name. The dear people buy it in their honey, candy, sugar, golden syrup, drips, and in other commodities we know not of.

"If your druggist sells you poison the law compels him to label it, that no harm may come of it. Then why not compel these men to do the same? 'Tis true that they may not sell a mixture so destructive as arsenic or any of the deadly poisons, but just as certainly injurious as any of them. Now my friends, in justice to ourselves and humanity, let us continue our warfare until the people by their representatives in Congress assembled, say to those men that their goods must be properly labelled and sold on their own merits.

"I fancy when that is done there will be a decline in the sulphuric acid and old rag market."

It is interesting to note that the results I detailed in our Journal some time since in reference to American wired-foundation, and once ridiculed on the other side of the Atlantic in a manner a little wanting in taste, are now courteously acknowledged by the inventor, Mr. D. S. Given, to be correct.—FRANK R. CHESHIRE, *Avenue House, Acton.*

#### TRADE CATALOGUES RECEIVED.

William Paul & Son, Waltham Cross, Herts.—*Catalogue of New Roses, Pelargoniums, Dahlias, &c.*

James Backhouse & Son, York.—*Catalogue of Alpine Plants and Hardy Perennials.*

Charles Turner, The Royal Nurseries, Slough, Uxbridge.—*General Spring Catalogue for 1881.*

Dicksons & Co., 1, Waterloo Place, Edinburgh.—*Descriptive Catalogue of Florists' Flowers for 1881.*

Edward Gillett, Southwick, Mass., United States of America.—*Annual Catalogue of North American Perennial Plants.*

Schultheis Brothers, Steinfurth-Nauheim, Germany.—*Catalogue of New Roses for 1881.*

Charles Van Geert, Rue de la Provence, Antwerp.—*Catalogue of Coniferæ.*

J. B. A. Deleuil, Marseilles.—*General Catalogue of Plants.*



**Books (C. L.).**—We do not know of any book precisely suited to your purpose. You should first practise elementary geometry, of which you will find figures and instructions in any good arithmetic as used in schools. "Plane Geometry," published by Crosby Lockwood & Co., London, price 2s., might also be useful to you. It can be ordered through a bookseller. Some of the best and most practical lessons on drawing designs for flower gardens and beds have appeared in several of the back numbers of this Journal. Many young gardeners availed themselves of these, and by assiduous practice rendered themselves competent in this essential part of their vocation; while others merely glanced at the figures, passed them by, and are now unfortunately like yourself—"unable to give a plan of a garden if it is called for." Some young gardeners have no more knowledge of using the compasses than they have of digging a piece of unlevel ground and leaving it level with the least amount of labour. They may be fortunate, and have labourers to do the digging; but they cannot expect them to prepare designs that are so often required by employers.

**Hyacinthus candicans (C. D.).**—The bulbs may be planted at any time when the ground is in good condition. If they are wintered in pots the soil should not be kept dry. We do not know what number you require. If you can state the approximate date on which the article appeared it shall be sent to you.

**Vines Dying (F. C. T.).**—The case is a mysterious one. We presume you are certain that nothing beyond the ingredients named were applied to the rods. If nothing more was applied to them it is certain that mixture would not be the cause of death, as the Vines in the other house show conclusively. Assuming that no mistake has been made in the dressing nor experiments tried, we can only attribute the injury to the action of frost between the haybands. We have known Vines much injured and one killed by the haybands slipping during an intense frost, but the Vines had been started into growth. These are the only suggestions we are able to offer on a circumstance which appears to us of a very extraordinary nature. We are not at all satisfied that frost is the cause of the death of the Vines. Examine them with great care both where the haybands covered them, which parts you say are alive, and in the house where the rods are dead. We sympathise with you, and regret we are not able to give you a more satisfactory reply on the data you have afforded.

**Friendly Letters.**—We have to acknowledge letters from a vast number of correspondents at home and abroad for their congratulations on the termination of a matter that we are surprised to find was of such widespread interest. Many letters are from friends who are unknown to us, and are not the less esteemed on that account. Our thanks are tendered to all those whose letters we are unable to acknowledge in the usual manner through the post.

**Rhubarb Running to Seed (F. J.).**—You had better break off the flower stems as soon as they appear, as they are of no use unless you desire to save some seed, and then one plant will probably afford sufficient for your purpose. When Rhubarb produces many flower stems it is an indication that the plants have either received a check or are getting old, and in the latter case is suggestive that it would be advisable to take off some of the best crowns with roots attached and plant in fresh deeply worked and rich soil. This is best done just as the crowns are swelling in the spring. If your plants are young, liquid manure would be beneficial; and the stalks should not be pulled too closely—that is, some good foliage should be left for forming stronger crowns another year.

**Packing Strawberries (Old Subscriber).**—Shallow boxes should be made on the same principle as referred to for Peaches last week; but for the fruit in question these boxes or trays only need to be 2 inches deep, and several of them can be placed in a larger box made for the purpose, strips of wood between each preventing the fruit being crushed. Each fruit should be wrapped in a partially withered Strawberry leaf or Spinach leaf, and placed closely yet carefully in the tray on a bed of leaves or bran, and a layer of soft leaves on the top. If the packing is carefully done and the fruit not over-ripe it may be sent long distances without being crushed. When packed for sale in the markets the fruit is placed in round chip punnets.

**Allamandas and Stephanotis (J. G.).**—The Allamanda flowers are very fine; the variety is, we think, Hendersoni. The Stephanotis is good, and the fact that the plant flowers continuously over a period of nine months is sufficient evidence of the merits of the variety and your skill as a cultivator.

**Stephanotis Management (H. S. J.).**—If you denude the plant of its side growths you will in all probability deprive yourself of a succession of fine flowers. As room is scarce you may remove those growths that are long-jointed and very luxuriant, retaining all that are shorter jointed, as these may be expected to produce flowers. They can be trained loosely round the wire, and after flowering if the plant is much crowded the superfluous growths may be removed. If you send 3½d. in postage stamps to the publisher, and ask him to send you No. 958 of the Journal, August 7th, 1879, you will find an excellent article on the cultivation of Allamandas. Mr. B. S. Williams, Victoria and Paradise Nurseries, Holloway, publishes some useful books on stove and greenhouse plants, and will send you particulars of them on application.

**Clematis not Succeeding (Bert.).**—We do not quite understand your question. If the house is a lean-to, and the roof is not very short, the plant ought to succeed, if planted in suitable soil and trained near the glass the same as a Vine. What variety of Clematis is it? how long has it been planted? what is the nature and position of the border? and how has the plant been pruned? Information of this nature appears essential to enable us to account for the unsatisfactory condition of your plant.

**Variegated Kale (G. O. S.).**—The leaves sent are attractive, the colours being varied and good, some clear ivory white and the others rich. We have grown superior examples, and have occasionally had varieties equal to yours from a packet of purchased seed that had been saved from selected plants. Your varieties are, however, above the average of those ordinarily produced from purchased seed. The value of a "strain" depends on the percentage of superior forms. If all of yours are equal to the examples sent your strain is a good one.

**Mandevilla suaveolens (P. D.).**—The plant you mention is a native of Buenos Ayres, and received its generic name in honour of John Mandeville, who was minister at that place. It is spelled as given above, and not with the final "ca" as it is erroneously rendered in some catalogues.

**Removing Vine (Donegal).**—If you remove the Vine at all you had better do it in the autumn, say towards the end of September, and then if the weather is bright syringe the foliage several times a day, and shade if needful to keep it fresh; you will then induce fresh root action before winter, which will be a great advantage. From your description of it, however, the Vine appears to be in an enfeebled state, and it is for you to consider whether a strong young cane would not prove more satisfactory. If you decide to remove the Vine first have the station ready, with plenty of loam at hand, mixed with wood ashes and a third of decayed manure if the soil is poor, for covering the roots. These must be kept moist during the process of removal, choosing a dull day for the work, which must be carefully yet expeditiously done.

**Potting Plum and Budding Cherry Trees (Idem).**—If you wish to have fruit as early as possible and small trees in pots, you may pot them now and plunge the pots in ashes outdoors to remain through the summer. The trees would grow larger, but would not be quite so precocious if left in the ground until the autumn. We should prune them as you propose now, pinch the strong shoots in the summer as needed to secure an equalisation of growth, exposing all the foliage to the sun, and pot the trees in the autumn. Cherries are far better budded than grafted. Grafting, if it succeeds, is often followed by gumming. Furthermore, your scions are too advanced. They should have been cut off a month sooner, and kept fresh by being placed in moist soil and a cool position until the stocks commenced growing. We advise you, however, to practise budding, inserting a few buds at different times, and you will soon find out the conditions requisite for success. We cannot state the time, as all depends on the condition of the buds and stocks.

**Various (Idem).**—The pots used for sowing Cucumber and Melon seeds should be washed clean, and be dry when used. One crock and a bit of turf shaken from the soil will suffice for drainage at this season of the year. The plants can then be turned out of the pots without the roots sustaining any injury. If you have moss over the drainage we should not remove it when repotting the plants. The manure may be used fresh from the stable for lining frames if a little that is old and sweet is placed on the top. The quantity you name, if applied frequently, will be of much service. Occasionally the lining should be turned over, adding to it fresh material, and an increase of heat is obtained. Linings will not afford sufficient heat if the glass is not covered with mats during cold nights, two or three thicknesses often being needful. Early autumn is the best time for transplanting Hepaticas, but it is not necessary nor advisable to remove the plants every year. The same remark applies to the Iris you name. The young growths of Deutzias and Weigelas strike readily if inserted in sand, covered with a bellglass, and placed in a Cucumber frame. The soil must be kept moist, the cuttings shaded for a time, and the growths a

little firm but not hard when the cuttings are made. Ripened wood also strikes if inserted in moist sandy soil under a handlight in late summer or early autumn. Two-thirds of good turfy loam, one-third of cowdung gathered from the field in a dry state and rubbed through a sieve, and a tenth part of coarse gritty sand or wood ashes, form an excellent compost for Pansies in pots. Decayed manure from an old hotbed will do if you have no cowdung. We are unable to help you in procuring flower pots.

**Walcheren "Broccoli" (G. O. S.).**—We are fully aware of the accuracy of your statement. The first of the catalogues we opened on receiving your letter contained these words in reference to this variety:—"Sow in March for use in September," which confirms emphatically what we stated, that the Walcheren is more of a Cauliflower than a Broccoli. Why seedsmen class it as a Broccoli we do not know. It is certainly no more a Broccoli than Veitch's Autumn Giant Cauliflower is; indeed it is neither so late nor so hardy as that variety. But the seedsmen make themselves safe, for they class the Walcheren also as a Cauliflower, for it may perhaps be as well to state that it is the same variety that is included under both heads. We might have gone further and stated that the Walcheren is not a Broccoli at all; and most certainly it cannot be properly compared as to hardness with the varieties of which Wilcox's Broccoli is the type any more than the Paris Cos Lettuce can be compared in the same sense with the Hardy Hammersmith Cabbage variety. Relative to your other remarks we appreciate your prudence, and we wish all our correspondents were as thoughtful as yourself, but it is not for this reason alone that your communications are valued.

**Raising Seeds of New Zealand Flax (J. Sinclair).**—The seeds should be sown in light sandy soil, plunging the pots in moderate bottom heat in an ordinary propagating frame or other suitable position, and being careful to prevent the soil becoming dry. They usually germinate in about a month; but the time varies, as with all seeds, according to the time of year when they are sown. In an establishment near London, where very large quantities of seeds are annually received from a variety of climates, it is customary, if the consignments arrive in late autumn or winter, to sow a portion of each and retain the others until spring, as germination is then not only much quicker but frequently a great proportion of young plants are obtained from the same quantity of seed. The steeping you gave the seeds, so far from aiding them, has probably killed them.

**Marechal Niel Rose Unhealthy (F. R.).**—Your plant has become exhausted by profuse flowering, and in all probability the root action is defective, the soil perhaps having become sour by the constant applications of liquid manure that were necessary under the circumstances. Although you cannot "get at the roots" we should still endeavour to renovate the plant. The fact that it produced a "fine shoot" after being cut back in the autumn is both encouraging and suggestive, inasmuch as it affords reasonable proof that if the pruning had been still more severe than more than one young shoot would have followed, and if strong healthy growths of this Rose can be produced flowers are tolerably certain to follow. We do not quite understand whether the "fine shoot" to which you refer was produced last autumn after pruning or is a young growth of this spring; however, the point is not of great importance, only we consider that the autumn is not the best time for pruning this Rose, and especially when it is grown under glass. We have never produced so many and such fine blooms of Marechal Niel over a period of many years as by pruning severely immediately the blooms were all cut. When the pruning is done then young growths speedily follow (if the plant is healthy and root action free) that extend many feet the same season and become matured. Such growths if left their full length, or nearly so, are almost certain to produce a number of fine blooms. This, then, is what you must endeavour to encourage—young growth, and your only mode of succeeding is by shortening the main and weakly branches at parts where the wood appears healthy—nearly cutting the plant down, and then by syringing freely in bright weather new and probably strong growths will follow. If the fine shoot to which you refer was produced last year, and is flowering, we should cut it down too, leaving only four or five good buds at its base, from which you would be almost certain to have as many young growths that would mature this year and produce flowers the next. The pruning may be done now or after you have gathered the flowers.

**Sowing Peas and Broccolis for Succession (J. E.).**—It is impossible to give dates for sowing Peas for producing an unbroken supply, as this work must be decided in accordance with the weather, and to give tabulated information of all the varieties grown would be more bewildering than instructive to the majority of our readers. If you sow the first three varieties at the same time you will have a succession; but it would be perhaps better to allow a week to elapse between the sowing of the first two you have named, the others may be sown as soon as those immediately preceding them appear above ground. As a rule it is a great mistake to grow as many varieties as rows when a regular supply is the chief consideration, and where a blank in gathering causes disappointment. The most experienced gardeners never adopt this plan, because practice has proved to them that it is not a safe one. After ascertaining about three varieties that succeed best in the garden and give satisfaction at the table, they rely on these for affording an unbroken supply, and never fail in their object. New varieties are grown in smaller quantities for testing their merits and for ascertaining the time that is required for growing them for table use; the regular supply, however, is provided for without taking the novelties into consideration. The Broccolis you name sown on the dates mentioned may be expected to afford a succession of heads, except the first, which sown during March and April is a Cauliflower, as it will form heads the same season. You must, therefore, make further sowings of Walcheren in May and June, and even then there may be a blank between this and Snow's Broccoli; indeed this is sure to be the case if late-sown plants of the former are not protected in the autumn, as has repeatedly been advised in our "Work for the Week." Veitch's Autumn Giant Cauliflower sown in May often comes in between the Walcheren and Snow's Winter White Broccoli.

**Annuals for Exhibition (P. Henslow).**—It is impossible to name twelve annuals for growing in pots so as to ensure them all being in the best condition on a given day in August, as these flowers are much influenced by the season. Your only mode of securing your object is to grow more than you require, and sow the seed at two different periods, and then select the best pots. Very much also depends on the treatment to which the plants are subjected. Stocks and Phlox Drummondii sown now in rich soil under glass, would, with good culture, be fine in August. Rhodanthe maculata is very fine in pots when well grown. The seed should be sown in the pots in which the plants are intended to flower; to be grown in a cold frame and not watered over the foliage. Sow towards the end of May and early in June. Schizanthuses are very effective, *S. oculatus albus*, *S. tigrisoides*, and *S. atroviolaceus* being all good. Dwarf Tropaeolums, scarlet, crimson, and yellow, succeed well in pots, King of Tom Thumbs being the best. *Collinsia multicolor* and *C. Bartschiana alba*, *Collomia coccinea*, *Convolvulus tricolor splendens*, *Nemophila insignis* and *N. maculata*,

*Venus's Looking-glass*, *Kaulfussia atroviolacea*, *Leptosiphon densiflorus*, *Nolana paradoxa*, *Sphenogyne speciosa*, *Lupinus nanus*, *Linnm grandiflorum*, Dwarf Larkspurs and Clarkias, and the taller annual Chrysanthemums are all suitable for your purpose, and may be sown about the middle of May and early in June. A good display may be produced in 6-inch pots. After placing in the drainage fill the pots one-third of their depth with rich but not wet manure, pressing it firmly; then fill up with soil—good turfy loam and a third of manure. Water the soil thoroughly before sowing the seed, which cover a little more than its own thickness with fine soil. When completed a space of an inch must be left from the surface of the soil to the rim of the pot for holding water. Plunge the pots in ashes in an open position, and afford some protection during heavy rains and thunderstorms; otherwise permit full exposure night and day. Sow thinly and thin quickly, overcrowding in the early stages being ruinous to annuals. The soil must never be dry, and when the plants commence flowering clear soot water and liquid manure made from fresh cow dung will be highly beneficial. With this generous treatment, and not allowing any seed pods to form, the plants may be maintained in beauty over a considerable period. Easily as annuals are grown in the open ground, it is by no means a simple matter to produce them in superior condition in pots, and to effect this object they need as much attention and cultural care as plants do that are of fifty times their value. Poor soil, neglect in watering, and overcrowding are the "rocks ahead" in growing annuals in pots during the summer; avoid these and you may hope for success. When prizes are given for annuals grown in pots, the size of the pots ought to be named, otherwise the plants may be exhibited in pots ranging in size from 5 inches to 12 inches in diameter. In this event the judges ought to take into consideration the sizes of the pots when awarding the prizes, and not give the awards simply to the largest masses, as some in the smaller pots may show equally good or even better evidence of superior culture. It would be well for you to obtain, if possible, some explicit information from the secretary on the point before sowing the seed.

**Names of Plants (W. E. B. Bideford).**—1, *Fuchsia procumbens*; 2, *Pteris straminea*; 3, *Nephrodium decompositum*; 4, *Polypodium phymatodes*; 5, *Resembles Pellaea cordata*, but the specimen was insufficient to determine with certainty. (W. A.).—1, *Sericographis Ghiesbreghtiana*; 2, *Asplenium maximum*; 3, *Polypodium plesiosorum*; 4, *Nothochlæna flavens*; 5, *Asplenium furcatum*; 6, *Davallia Mooreana*.—(W. B.).—*Thujopsis borealis*. (H. A. T.).—*Acer rubrum*, the Scarlet Maple, introduced from North America in 1656, and is plentiful in many nurseries. (M. S. O.).—*Sparmannia africana*.

#### COVENT GARDEN MARKET.—APRIL 13.

In consequence of the holidays the demand for forced fruits has much fallen off, Strawberries being lower. A few samples of new Grapes to hand of inferior quality.

#### FRUIT.

		s. d.	s. d.			s. d.	s. d.	
Apples.....	½ sieve	2	6 to 4	6	Melons .....	each	0 0 to 0 0	
Apricots.....	box	0	0	0	Nectarines.....	dozen	0 0 0 0	
Cherries.....	½ lb.	0	0	0	Oranges .....	½ 100	4 0 8 0	
Chestnuts.....	bushel	12	0	16	0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0	0	0	Pears,kitchen ..	dozen	2 0 3 0	
Filberts.....	½ lb.	0	0	0	dessert .....	dozen	4 0 8 0	
Cobs.....	½ lb.	2	0	0	Pine Apples ...	½ lb	1 0 2 0	
Gooseberries ...	½ sieve	0	0	0	Strawberries ...	per lb.	6 0 8 0	
Grapes .....	½ lb	6	0	15	0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12	0	18	0	ditto .....	½ 100	0 0 0 0

#### VEGETABLES.

		s. d.	s. d.			s. d.	s. d.	
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	pnnnet	1 0 to 1 6	
Asparagus.....	bundle	0	0	0	Mustard & Cress..	punnet	0 2 0 3	
Beans, Kidney....	½ 100	1	0	1 6	Onions.....	bushel	3 6 5 0	
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0	9	1 6	Parsley..... doz.	bunches	6 0 0 0	
Brussels Sprouts..	½ sieve	0	9	1 3	Parsnips.....	dozen	1 0 2 0	
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0 0 0 0	
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3 9 4 0	
Capsciums.....	½ 100	1	6	2 0	0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0	0	3 6	Radishes.... doz.	bunches	1 6 2 0	
Celery.....	bundle	1	6	2 0	0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2	0	4 0	Salsafy.....	bundle	1 0 0 0	
Cuenibers.....	each	0	4	0 6	Scorzoneria.....	bundle	1 6 0 0	
Endive.....	dozen	1	0	2 0	0	Seakale.....	basket	3 0 3 8
Fennel.....	bunch	0	3	0 0	Shallots.....	½ lb.	0 3 0 0	
Garlie.....	½ lb.	0	6	0 0	Spinach.....	bushel	3 0 0 0	
Herbs.....	bunch	0	2	0 0	0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	2	0 4	0	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE UTILISATION OF WASTE LAND.

(Continued from page 282.)

A MODE of utilising waste land—by its entire reclamation from absolute sterility, or by improvement of tracts of but little value, although enclosed and turned to very little account—now deserves notice. The process we allude to is called "warping," which is made use of in certain districts bordering upon rivers and their tributaries. In order that this operation may be pursued with advantage several points are necessary—namely, that the general level of the country through which the river flows should be below



that of the tide at high water; and the water of the river should be subject to supply from extensive watersheds of cultivated land, in order that large quantities of alluvial matters may be flowing with the water, especially at the time of floods, and held in suspension when the water is penned and retained as a pond over the surface of the land to be warped. For this purpose the river water at low tide is allowed to flood the land by means of outlets in the banks of the river and prepared channels and sluices, and it is then kept there until it has deposited the mud or silt with which it is charged. When this has taken place the clear water is allowed to flow away by other channels and return to the river. Fresh quantities of water are then admitted at every succeeding tide, each of which produces a new superstratum of sedimentary matter, and this operation is repeated until the requisite thickness of the warp has been obtained. The quantity of warp so deposited by each successive tide in many cases exceeds one-tenth of an inch in thickness. It varies, however, greatly at different periods of the year, according as there is little or much flood water in the river and in the position of the land. By these means there is often created in the course of a few months a new soil of considerable depth, which will consist for the most part of the various kinds of earth and undecomposed vegetable and animal matters which the waters of the river have collected and borne along in their course. Land thus warped is said to possess a natural power of production of the most remarkable kind, and a degree of fertility far exceeding that which is obtained by any of the ordinary processes of cultivation; in fact, large tracts of perfectly sterile land, such as sandy and peaty soils in the neighbourhood of the rivers Humber, Trent, and Ouse, with many others on various parts of the seacoast, have yearly been converted into good land solely by the agency of these operations. Still there are large areas capable of being reclaimed in the same way under similar circumstances, which in most instances if properly managed might be rendered profitable either as arable or pasture land.

As we must consider the question of warping and reclaiming land, especially in those cases where the mouths of rivers meet the tides, it will be necessary not only to refer somewhat minutely to the general question, but also to the advantages to be derived by the owners of seaside property by enclosing and reclaiming mud lands, and before concluding we shall refer to dry warping. Although warping has been only known in England for about 130 years, having been first practised near Howden on the banks of the Humber about the middle of last century, and brought prominently before the public by a Mr. Marshall in 1788, yet it has been long followed on the continent with great success under a different name, and is thus described by a Mr. Cadell in his "Journey in Carniola":—"In the Val di Chiana fields that are too low are raised and fertilised by the process called *colmata*, which is done in the following manner:—The field is surrounded by an embankment to confine the water; the dyke of the rivulet is broken down, so as to admit the muddy waters of the high floods. This water is derived only from the streams which flow into the Chiana, and is allowed to deposit its mud upon the field. The water is then let off into the river at the lower end of the field by a discharging source. In this manner a field will be raised  $5\frac{1}{2}$  and sometimes  $7\frac{1}{2}$  feet in ten years. If the dyke is broken down to the bottom the field will be raised to the same height in seven years. It is found that water which comes off cultivated land completes the process sooner than that which comes off hill and woodland. Almost the whole of the Val di Chiana has been raised by the process of *colmata*."

Take for instance the counties of York and Lincoln, which illustrate also various portions of other districts. Not only are they both more than half surrounded by water, but the greater portion of the country so situated lies below the level of the sea, from the encroachment of which, indeed, it is only preserved by extensive

walls and embankments. The water of the rivers that flow through such a district, as may be naturally supposed, is highly charged with fine mud and silt, admirably adapted for the purposes of the warper, who conducts his operations as follows:—After an excavation has been made in the river bank a dyke, and sometimes raised embankments, are built to guide the water from the river to the land to be warped. In order to confine the water to any particular spot and prevent it overflowing the adjacent country the land is divided into compartments of about 20 acres in extent by strong well-formed banks, which are of the same height as those of the main feeding dyke. In this way each flood tide is conducted into every one of the compartments in succession, and as it ebbs the hydrostatic pressure of the water alone suffices to force open the swinging doors of the return sluices, thus allowing itself to escape in the main canal, and thence into the river, after having deposited nearly the whole of its mud upon the surface of the enclosed land.

By the above plan it has been found possible to warp land in one year to the depth of from 2 to 3 feet, and this is generally considered to be quite deep enough, and is permanent in its action. This statement, of course, only applies to those lands which are sufficiently below high water mark; where the level is higher a longer time—often from two to three, and sometimes even four years—is required. In the year 1825 the Society of Arts voted a premium, consisting of its large gold medal, to a Mr. Ralph Creyke, jun., for his description of the process of warping by an improved method a tract of 429 acres of peat moss. The superiority of his process over those ordinarily followed consists in creating a fine deep rich soil more effectually upon a larger scale and in a shorter time than has hitherto been practised. According to the usual practice the tides are only admitted during the months of August, September, and October; but by his plan they are admitted all the year round. Usually the sluice is not made more than 5 feet wide; his has two openings of 16 feet wide. The main drain is usually only 12 feet wide; his is 90 feet wide. Not more than about 14 acres are often embanked in one piece; he has enclosed 500 acres in one compartment. Formerly not more than  $1\frac{1}{2}$  foot of deposit was obtained; he has got from 3 to 5 feet upon the increased quantity of land. Scarcely any inlets used to be made for the purpose of spreading the tide water quicker and more equally over the surface of the land within the embankment, as well as for the speedy return of it upon the ebb. In all his practice innumerable inlets are formed for this purpose. It is necessary to keep all warped land thoroughly drained; and as in various cases it is found advantageous to sub-irrigate the land, it is desirable to set out the drainage with this double object, so that in extremely dry seasons the tide water may be admitted to percolate the drains as occasion may require. We have pursued this plan with open drains on our own marsh land with good effect.

The process called dry warping consists in the spreading and covering land with other soils to a depth of from 6 to 9 inches according to circumstances, and thus converting barren or inferior into fertile land. A remarkable illustration of this is afforded us in the utilising of Hatfield Chase, which was a peat moor of about 4000 acres lying above the level of the neighbouring corn lands. An Act of Parliament for enclosing the moor was obtained about seventy years ago, though for what object at the time it was not easy to see, as no one could then have anticipated the possibility of making this hitherto impassable morass of any value. By the construction of public and private enclosure drains it gradually became firm land, and the existence of an old river course—the waters of which two hundred years ago had taken a new channel—was remembered, and a Mr. Hatfield Gossip, who owned a considerable part of the moor, conjectured that this old course would contain rich alluvial matter deposited by the tides from the rivers Trent and Humber. He conceived the idea of covering the whole moor with this, and to his perseverance and skill in carrying it out we are indebted for the practical exposition of the advantages of dry warping. The process pursued was to form a railroad from the pit (or excavation into the alluvial deposit) over the moor, with branch rails leading to the parts to be improved. "A stationary engine drew up from the pit the loaded waggons, which were then taken by a locomotive engine along the main line, and passed by the branches to the required spot. Here the waggons were tilted over, and the soil spread to a depth of 6 or 8 inches. When the moor for 7 or 10 yards on each side of the branch was covered, the rails were removed by a machine traversing the line and taking up the separate pieces of rails and deposited them in a fresh line with the greatest expedition and facility, and thus was seen a sheet of firm and fruitful soil steadily spreading over this once hopeless quagmire." The advantage of a well-drained substratum of peat has been long appreciated for grass crops.



Here the fresh coating of rich soil produces a slow decomposition of the old vegetable covering of the peat as well as of the peat itself, and the roots of grass or other crops striking deep into these always find moisture and nutriment. The effect has been that most astonishing crops of Clover, Turnips, and particularly Beans, have been grown on the newly warped land, and that grass is green in the driest seasons and possesses peculiar milking and feeding qualities.

#### WORK ON THE HOME FARM.

*Horse Labour.*—Barley sowing should now be completed in preference to any other horse labour, because we have found it difficult to obtain a good stout grain fit for malting when the seed has been sown after the middle of the month of April. The same remark applies to sowing Mangold seed, especially upon the hill farms, for two reasons; first, because on the elevated chalk soils the growth of root crops is always slow even in summer; secondly, unless the seed is sown whilst the ground is moist, the seed may not vegetate until sufficient rain falls, and if rain should be delayed the loss of the crop must certainly ensue. A striking instance of this occurred to the Mangold crops of last year, large areas of land being ploughed and re-sown with other root seeds in consequence of the weeds making a great growth whether the Mangold seed vegetated or not. Clover seeds should be sown at the same time as the Lent corn, except in those cases where the corn is drilled at 12 inches apart between the lines, for the seeds may be then sown before the hoers, in order that in destroying the weeds the Clover seeds may be buried at the same time. The mixture of seeds we prefer is broad Clover and Alsike, with some Saintfoin, but no Rye Grass; in the alternation we sow white Clover, yellow Suckling, and Cow Grass; when, however, the land is required for feeding off during two or three years we choose a mixture of white Clover, Timothy Grass, Hard Fescue, Sheep's Fescue, Cocksfoot, and Pacey's Perennial Rye Grass. If the land is in good condition, and especially if the seeds are sown after a Wheat crop, this mixture will produce capital turf for stock-feeding until required for corn, as it would be in the five or six-course rotation after bearing grass for two or three years. In order that the land may not deteriorate, all stock should be allowed to have cotton cake whilst depasturing the old leas; for referring to Mr. Lawe's statement, the value of the manure derived by the feeding one ton of decorticated cotton cake amounts to the sum of £3 12s. 6d., quite irrespective of any advantage derived by its consumption by cattle or sheep. In drilling Cabbage or Thousand-headed Kale seed upon stretches manured and prepared for the purpose of retaining a plant for the future crop, the further object may be attained of providing plants for transplanting in other fields if the land is kept clean by continued horse-hoeing between the lines, and hand-hoeing in the lines. A double number of plants may also be left on the stretches when hand-hoed, so that a large number of plants for transplanting may be available by pulling every alternate one and yet reserving a full crop on the stretches. This plan to a certain extent will obviate the necessity of sowing the seed on prepared beds or borders.

*Hand Labour.*—At this time of year peat may be dug where peaty meadows or waste occurs, with a fair chance of drying them fit for storing for future use. This is not only available as fuel for the cottagers or on the farm, but in pasture districts where little arable land is attached to the farm we recommend dried peat as a substitute for straw in the cattle pens; it is an absorbent, and by proper management will contribute to both the health and cleanliness of the stock. It is also valuable in the land as manure, because, unlike other kinds of earth, it does not contain the seeds of weeds.

*Live Stock.*—At this time it is customary to purchase stock for feeding on grass lands of certain districts, and the home farmer should observe the policy of feeding cattle on his pastures instead of sheep for two very substantial reasons; first, because sheep destroy or injure the finer herbage, and are more liable to suffer from the fluke rot than cattle. Horned cattle occasionally suffer from the fluke, but it is chiefly due to close feeding upon very wet land. In stocking the farms with dairy cows some farmers are accustomed to purchase by commission to a dealer; and as the cows which have been taken to the metropolitan market to be sold are often the finest dairy cattle in the kingdom, it is not an advisable practice, as they often contract disease. It is an advantage that through restrictions they cannot as usual be sent there for sale, and in consequence purchasers should give their orders to trustworthy commissioned men, and have their cows conveyed into the district by railway. In the same way young stock of the best quality may be obtained either of heifers or steers; for although they are enabled to travel better and with less injury than dairy cows, yet they often pass through districts in which they take the germs of some disease; at any rate, they are subject to the disturbance and irritation of a long drift, which often reduces their condition as well as their health.

#### VARIETIES.

**POULTRY SHOWS AND PRIZES.**—It is a great pity that the Birmingham Dairy and Poultry Show in June will clash with the Bath and West of England Show at Tunbridge Wells. We have both the schedules for poultry before us, and cannot help thinking that the Bath and West of England Society has been ill-advised to

reduce its prizes so much. Cups and special prizes seem entirely to have disappeared from the list, and save in the case of Turkeys, which have £2 first prizes, no first prize is more than 30s. Considering the length of the Show, and the fact that the entry fee is 5s., and that the place of Show involves birds from the greater part of England travelling by at least two lines of rail, the 'schedule does not strike us as a tempting one.

— **THE LATE MR. FRANK BUCKLAND.**—Prince Christian has joined the Committee which has been formed to raise a memorial to perpetuate the services rendered to the study of natural history and fish culture by the late Mr. Frank Buckland. Subscriptions will be received by the Hon. Secretaries, Lieut.-Col. Bridges and Mr. T. Douglas Murray, at 34, Portland Place, W.; by Messrs. Cox & Co., Craig's Court; and at the office of "Land and Water," 176, Fleet Street, E.C.

— **ARRIVAL OF SUMMER MIGRANTS.**—Dr. D. G. F. Macdonald writes to the *Daily News* under date 9th inst., from Woodford, Essex:—"In spite of the cold winds the bright sunshine has lured our summer migrants to their old haunts, for I was welcomed in Epping Forest by the sweet notes of the cuckoo and the nightingale this morning, whilst swallows and martins flittered over the pretty glades and russet slopes, with all their wonted gracefulness."

— **HOMING PIGEONS IN GERMANY.**—From time to time, as subjects for leading articles fail, the daily journals treat us to disquisitions on "Carrier Pigeons." Often very amusing they are, and singularly misleading to the uninitiated. In a late number of the *Daily Telegraph*, however, we read an article far in advance of the common knowledge of the subject, and in which were some interesting facts concerning the careful maintenance of Homing Pigeons for military purposes in Germany. After some poetic contrasts between the bird of Mars and the bird of Venus we were interested with the following on the PIGEONS' BATTALION IN WAR.—"Looking about for improvements in war, the great military empire (Germany) has remembered the Carrier Pigeon, and, with complete fidelity to the swift-winged bird's traditions, has taken it from the easeful lists of love to the stern realities of the battle field, and made it once again the messenger and the emblem of strife. Often before in the East, and during the Franco-German war sometimes in the West, the Pigeon had already been thus employed; but it has remained for Germany to recruit the bird formally into the ranks, to give it depôts and étapes, lines of communication and bases, a military organisation for the field and another for peace times, to settle precisely its place in cantonments and in camp, to tabulate its military duties, and to draw up schemes for its commissariat and transport. With their head-quarters at Cologne, these birds of war have had mapped out for them in a regular scheme of lines and cross-lines the services they will have to render; and 'the Pigeon battalion,' therefore, ranks from to-day as a standing feature of the German army of the future.

— **STRAWBERRY FARMING IN AMERICA.**—There are now under cultivation around Charleston, S.C., within a convenient distance from the railroad depôts and wharves, about 250 acres of Strawberries, which will, with a favourable season, furnish for shipment to New York alone 1,000,000 quarts of berries; about 1500 acres of Potatoes, with an aggregate probable out-turn of 60,000 barrels; about 300 acres of Tomatoes, and about the same number of acres in Peas and Beans. These farms are highly cultivated, and are a source of great profit to the owners when they can get the crops to market early in the season. The Strawberry crop, which is the most valuable, is well advanced, and the season promises to be early, and consequently profitable.

## POULTRY AND PIGEONS

#### THE DORKING.

I READ with much interest Mr. Cresswell's admirable letter on the Dorking fowl, and only hope that from it, and the correspondence to which it may give rise, breeders may arrive at some definite and satisfactory conclusion as to what is really the most

desirable type of Dorking. I have always liked to look upon the Dorking as holding a position among poultry similar to that of the Shorthorn among cattle. In many respects their points are analogous—viz., early maturity, large size, great natural inclination to put on flesh &c., and, what I consider of most vital importance, a strong tendency when crossed with inferior stock to transmit much of their own excellence to their progeny. Regarding the Dorking fowl from this point of view, I fail to agree with those who write as if it should be judged solely as a table fowl by the delicacy of its meat. This is certainly an important point, but at most it is only one point out of several which go to make up a perfect Dorking. Everyone knows that if judged by quality of meat alone the Shorthorn would take a comparatively low place among cattle, being far surpassed in this respect not only by West Highland, Black-polled, and other pure breeds, but also by many crosses, and to decry our Dorkings because other fowls can be found excelling them in this one point seems to me to be much the same thing as to condemn the Shorthorn *in toto* because it does not produce the finest grained meat in the Christmas markets. If, as I believe, Mr. Tegetmeier is relying on a Dorking cross (such as won in the table poultry class at the last Crystal Palace Show) to produce a superior table fowl such as Mr. Weir refers to, this only strengthens my case. As to size, Mr. Weir's argument as to great size, being of itself a drawback from a table point of view, will, I think, hardly bear investigation. A Turkey is universally admitted to be a most excellent bird for the table, and yet I venture to say that no one would think of offering a lady the whole of the liver wing of a good large Turkey on account of its size. Several ladies may dine satisfactorily, however, off one side of the breast, and this also applies to a good Dorking.

Although a Scotch fancier I cordially deprecate any value being attached to a red ear in Coloured Dorkings, and in my own experience I have almost always found that the best birds had at all events a tinge of white. If required Dorkings could of course in time be bred to red ears, but even if no cross was used to effect this object it would entail, temporarily at least, the sacrifice of many more important points. Of this fancy for red ears to which Mr. Smyth refers, together with a strong tendency to make the Coloured Dorking a bird of feather, and that too of the darkest possible feather, we are now beginning, in Scotland at least, to feel the effects. At present, under some judges in the north, a light-coloured bird appears to have hardly any chance, unless all the dark ones are very much inferior. At some shows indeed, whether designedly or not I do not know, the term "Dark Dorking" has taken the place of that of "Coloured Dorking other than Silver Grey" in the prize lists.

No doubt it is far more pleasing to the eye to have one's flock of Dorkings all of the same shade of colour, still I think this point might more advantageously be left to the taste of the individual breeder. There are many shades between the extremes of light and dark; and if the only restriction for an exhibition Coloured Dorking was to a sound rich colour and handsome appearance, this would include all that is really necessary, and by leaving each breeder very much to his own discretion would save many a grand Dorking fowl from being drafted—its inevitable fate if an arbitrary colour standard should be generally adopted.

Sooty feet are another important point, and I can't help thinking indicate, in some cases at least although not always, a cross more or less remote. Yet here again I would be in favour of some discretion being left to a judge. In pullets more especially I have noticed many good birds to have dark feet as chickens which in the second year became perfectly white. In such cases it would be rather hard absolutely to disqualify a pullet which in another year might win a cup at the same show as a hen with white feet. Old hens might fairly be more severely dealt with, and also cocks of all ages. I have never bred a cockerel with sooty legs or feet, but feel pretty sure that from hens being as a rule more liable to it, the fact of a cockerel having dark feet would prove the fault to be so inveterately established in the strain that it would warrant a judge passing over an exhibit, even if only for the sake of checking the spread of the defect.—J. T. CATHCART.

I CAN confirm what Mr. Cresswell says of Dorkings being an excellent substitute for young Turkeys. Three years ago, in the month of June, a poulterer with whom I had been long acquainted came and asked me as a special favour to let him have any very early Dorking chickens I could spare, quality being no object so long as they were big. I happened to have three or four faulty birds weighing about 5 lbs. each, which I had killed and sent to him. I was much surprised at the very liberal price he paid me for them. Some time afterwards I discovered that the poulterer

had received an order to supply some Turkey poults for a military ball supper, and, not being able to obtain any young Turkeys, my Dorking chickens had taken their place. I can answer for it that no one ever discovered the difference. I have always understood that in the present day the great object is to produce the animal or fowl that comes soonest to maturity, and in this respect I consider the Shorthorn and the modern Dorking excel.—M. F. SMYTH.

## PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 284.)

### GENERAL PRINCIPLES.

WE have next to consider the question of the age of the breeding stock in reference to mating them. Very young birds should not be bred from, and it is best to mate cockerels and pullets with older birds. As the season advances and the birds of the previous year have become fully matured this is of less importance, but for early hatching the mating of a cockerel with pullets should be avoided. The progeny are almost always more delicate than those bred from yards where at least one parent bird is fully matured. It may be objected that there is a difficulty in getting hens to lay early in the season, and that there is a still greater difficulty in getting fertile eggs from pullets mated with an old cock. To this we reply that as a rule both difficulties can be got over. If care be taken to induce an early moult in the hens they will probably be ready to lay just as early as the pullets. If the cocks be separated from the hens during moulting time, and only put with the pullets a short time before the eggs are wanted, there will generally be a fair number of fertile eggs. Another method which we have adopted with success, and which we have not seen suggested elsewhere, is to select from amongst the later cockerels those that are most promising and keep them running together apart from hens or pullets until their first adult moult; these birds are then used to mate with the pullets selected for early hatching.

The method of hastening the moult of the hens is as follows:—If the hen be of a sitting variety she is just as the moulting season approaches encouraged to hatch, and given a few eggs to sit upon. She is either allowed to hatch and rear a few chicks or to lie four or five weeks on the nest. When she leaves the chickens or comes off the nest, as the case may be, she is placed in an extra warm house or pen and given a little hempseed with her other food; this generally produces the desired effect. With hens of the non-sitting varieties, and with cocks, the latter part only of the treatment can be adopted, and it is not always successful, but a sufficient number of birds to supply eggs for early hatching can generally be moulted through by these means.

Although it is best to mate birds in their first year with older ones there is no objection to mating birds two, and in some breeds even three, years old with each other; these often produce the finest chickens. When a valuable bird begins to get old, however, it is generally necessary in order to insure the eggs being fertile that the mate or mates selected should be young.

When birds are found to "hit well together," or in other words to produce valuable offspring, it is as a rule best to allow them to remain together as long as considerations of age will permit. We have seen a theory advanced in respect to the breeding of larger stock, that it is only by this permanent mating that the best results can be obtained. There is no doubt that traces of previous alliances often appear in a most inexplicable manner, and it is hard to say with certainty that any length of time will quite obliterate the effects of an alliance. What is known as "the influence of previous sires" has been much discussed from time to time, and arguments have been adduced in support of a theory that the ovum may be partly fertilised by one alliance and the fertilisation completed by another. We once had a case in our yards which did much to convert us to this doctrine. A Silver-Grey Dorking cock paid a visit to a yard of Dark Brahmas; he was at once discovered and ejected, and steps were taken to render any further trespassing impossible. All the eggs from the Brahma hens were being set. From those of one of them we produced one regular cross-bred Brahma-Dorking chicken, and a series of five or six others showing gradually less of the Dorking and more of the Brahma, until at last one—a pullet—was of good Brahma shape and colour and well pencilled, and only showed the Dorking taint by having five toes on each foot.

Some of the French fanciers recommend a method of breeding which indicates a concurrence in the theory that the influence of more than one male parent may affect the offspring. They adopt the plan of running two cocks on alternate days with the same hens. These cocks are chosen with a view of mutually counter-acting each other's defects and thus producing chickens with the

good points of both. This method may under some circumstances be worth a trial, but we should only be inclined to resort to it where no other was available.

Partly, then, from a belief that it is only by permanent mating that the best results possible from an alliance can be obtained, and partly upon the more practical ground that it is well to make the most of a successful hit, we recommend that a suitable alliance should not be disturbed.

Another matter upon which there has been much discussion may also be mentioned—namely, the effect of the imagination or the visual impressions of the parent upon the offspring. Sufficient evidence has been adduced in favour of the theory that the close proximity to the hen of birds of a very different colour to her own may affect the colour of the chicks, to make it worthy of the attention of the breeder to take care that all risk of such impressions be avoided. If birds of very different colours are running next each other it will be well, therefore, that the fence between them be of such a character that they cannot see each other.

(To be continued.)

### BUFF COCHINS.

I HAVE been much interested in the discussion which has recently been going on in your columns as to the points of the Dorking. Such discussions do much to clear the ground of doubtful matter and to give uniformity to the decisions of the judges. Personally I am not concerned with the Dorking, my breed being the Buff Cochin. I should like to see recorded in your columns the opinions of leading Cochin fanciers upon a point which a few seasons back gave rise to much uncertainty, and which even now is by no means clearly settled—namely, Are tricolored Buff cocks to be admitted to the prize list?

A year or two ago a very fine bird of the tricolored sort experienced great vicissitudes of fortune. At several shows he stood at the head of the list, while at others he was amongst the unnoticed crowd. His merits as a Cochin were undoubted, but the three colours threw him out with some judges. Now, whilst admitting the striking effect produced by the contrast of colour, I am inclined to think that the judges who pass over birds of this type are in the right. My experience has been that such birds do not breed evenly coloured pullets, and I think that the uniformity of colour which is admittedly indispensable in the one sex should be equally insisted upon in regard to the other. Perhaps some of your readers will give us the benefit of their ideas upon this subject.—BUFF.

### CROSS-BRED POULTRY.

THIS is a matter about which I should be glad of information as the results of one or two experiments have not been satisfactory. Here in Mid-Sussex every cottager's wife rears chickens for market in large numbers, and all of them are cross-bred. The hens used originally were those termed Sussex, not unlike the Dorking in their handsome shapely bodies and short legs. Many of the chickens revert to the original type now, while others develop greater length of limb owing to the cock almost invariably being of the Brahma type and not unfrequently pure Brahma; for weighty birds are required for market, and such are undoubtedly the result of this popular Sussex cross. A ready sale is always found for them, the early spring broods being the most profitable, poultry dealers making long rounds in search of them, and giving 8s. a couple at the cottage door for chickens that are subsequently fattened for market by the dealer.

Having to provide and maintain an abundant and regular supply of chickens for table, this local breed was adopted by me with confidence, and no difficulty was experienced in rearing and fattening them. The chickens were large, heavy, and remarkable for an excess of fat as they attain to full growth, but the older ones were so strongly objected to upon the score of coarseness that I resolved to try a cross with a Game cock and Dorking hens. I had heard the cross highly commended as producing chickens of that fine quality of flesh and delicacy of flavour so dear to the palate of a connoisseur. The result was the reverse of satisfactory, for the chickens proved so delicate in constitution that a large percentage of every brood were lost soon after hatching, and the survivors grew so slowly and were at best so undersized that the cockerels were crowing away lustily before they were big enough for table, and at their best they were miserable starvelings in comparison to the noble Brahma-Sussex chicks. The Game cock was a splendid fellow, but he came to an untimely end, and the whole of his progeny were got rid of. He was replaced by a fine Dorking cockerel two or three months ago, and from the appearance of the early broods of Dorking chickens I think the

change will answer. Meanwhile care has been taken to establish enough of the Brahma-Sussex fowls in another yard to ensure a supply of chickens, and I cordially commend them to the notice of all who require large hardy chickens and are not very critical about points of delicacy and flavour in the flesh, which is certainly tender enough.

I may add that we do not depend upon any of the fowls named for the egg supply, a considerable number of Silver-spangled Hamburgs being kept solely for that purpose, and especial care is taken to rear enough pullets of the Hamburgs early to afford a supply of eggs in winter when the old hens cease laying.—EDWARD LUCKHURST.

### HOMING PIGEONS.

MR. HUIE's letter in your last issue cannot fail to be interesting to every Pigeon fancier. The fact which he relates so circumstantially that there seems no possibility of there being mistake in it, of an untrained Pigeon having flown from Ledbury to Scotland, can but lead one to conclude that there is something more than sight which directs the flight of the Homing Pigeon. I do not pretend to be experienced in this race; still several facts which have come under my notice in the case of various Pigeons have long inclined me to believe that instinct—I do not mean the highly developed instinct of the migratory bird, but a sense apart from sight and unexplainable from experience—does aid the flight of Pigeons. I will relate one case, by no means carrying the strong proof of that given by Mr. Huie, but still presumably favouring the instinct theory. I had as a boy some indifferent dark blue Fantails, the hen an old favourite, the cock young. I gave them to a servant to send away and thought no more about them; five weeks afterwards I found the hen quietly feeding in her old quarters. I inquired where they had been sent, and found that they had gone to the east of London, about eighteen or twenty miles from where we lived in West Middlesex. They were confined for five weeks; but accidentally one day the hen escaped, and by noon the next day we found her in her old quarters; she had within a few hours crossed the great city and reached her old home fourteen miles beyond it. The bird had been given to me, and as a nestling had never been taken in her life off our premises; and as every fancier knows Fantails are not high and experimental flyers, so it seems next to impossible that she could ever have been at a height to see twenty miles. Such an instance is of course only a small gain in cumulative proof, but two or three like that given by Mr. Huie would go far to establish a fact contrary to the almost universal belief of fanciers.—O. E. CRESSWELL.

### OUR LETTER BOX.

**Illustrated Poultry Book** (F. G.).—"The Illustrated Book of Poultry," published by Cassell, Petter, Galpin, & Co. It can be obtained in fifty 6d. parts, or bound, price 31s. 6d.

**Uncooked Rice as Food for Chickens** (*Idem*).—Uncooked rice is very bad for young chickens, partly because upon becoming moist it swells greatly, and partly because there is so little real nourishment in rice. We only use rice occasionally as a check to any tendency to diarrhoea, and it should for this purpose be thoroughly boiled in milk.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. April.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	3	Inches.	deg.	deg.		deg.	deg.	deg.	deg.		In.	
Mon.	4	30.032	39.2	33.3	N.E.	42.0	46.4	32.0	100.9	27.4	—	
Tues.	5	30.026	41.3	35.1	N.E.	41.6	50.4	28.3	106.8	28.8	—	
Wed.	6	29.806	41.6	36.6	N.E.	41.7	52.5	31.8	113.3	27.3	—	
Thurs.	7	29.795	42.5	37.8	E.	42.1	52.7	35.1	112.8	31.6	—	
Friday	8	30.028	44.7	39.0	N.E.	42.6	52.4	31.7	106.0	27.2	—	
Satur.	9	30.068	46.5	42.2	N.E.	42.8	53.0	30.5	107.4	26.0	—	
		30.067	46.1	42.4	E.	43.3	56.6	36.7	102.4	31.7	—	
Means.		29.975	43.1	38.1		42.3	52.0	32.3	107.1	27.9	—	

### REMARKS.

3rd.—Very dry, cold, windy, and dusty.  
 4th.—Squally cold winds; fine and very bright sunshine.  
 5th.—Very fine, slightly warmer, bright hot sunshine.  
 6th.—Bright and fine, much wind and dust; moonlight night.  
 7th.—Fine, bright, and cold; clear moonlight night.  
 8th.—Fine and bright, still windy and dusty, rather more cloud.  
 9th.—Dry and fine, but more cloud than on previous days.  
 The dry east winds have prevailed throughout the week, but with less violence. The temperature is still below the average and the air very dry.—G. J. SYMONS.





21st	TH	Linnean Society at 8 P.M.
22nd	F	Quekett Club at 8 P.M.
23rd	S	Royal Botanic Society at 3.45 P.M.
24th	SUN	1ST SUNDAY AFTER EASTER.
25th	M	
26th	TU	Royal Horticultural Society—Fruit and Floral Committees at Society of Arts at 8 P.M.
27th	W	[11 A.M.]

## LECTURE ON THE AURICULA.

[Delivered by the Rev. F. D. HORNER at South Kensington on Tuesday last.]



AM asked to say a few words to you this afternoon upon the Auricula, which is a special feature in the Flower Show, contributed by the members of the National Auricula Society. With the flower in its beauty before you, my pleasant task can only be to say of it that which it has no power to express for itself. Mere praise to its very face would be as idle and unhappy as holding up a coloured picture to the inimitable original in life. But something of the past history of this flower, and something of the qualities that constitute its grace and beauty in the eyes of those to whom it is a very dear favourite, will add, I trust, to the interest with which you will regard and remember our flowers to-day.

This plant has so long been under the care of man, that like his domestic animals, though sprung from a naturally wild and hardy thing, it would not live apart from him, and without that attachment on his part which it seems to so faithfully appreciate and reward.

Some of the plants here to-day you have been wont to see in their accustomed place season after season, some even in successive shows. The Auricula is among them for one brief spring day—rare enough to be a floral phenomenon. It flashes into sight like some meteor across the sky and is gone. It is apparently a new comer, but in reality it is one of the very oldest of show flowers; for there were exhibitions of Auriculas in Lancashire more than 150 years ago. Indeed, to anticipate a little, I might have brought you a plant of a venerable sort called “Jingling Johnny,” shown at Eccles, then a straggling village near Manchester, a round century since. But the public career of the “Jingler,” as he was familiarly called, is closed, his long days nearly numbered, and no reasonable extension of a class list could now set him up again on a pinnacle of floral fame. Now we are accustomed to see such excellencies of form, colour, and habit in exhibition plants as are not found in the uncultured species from which they may have sprung. But in so high degree have all these points been gained in the Auricula that it is nothing short of an acquired flower, developed past resemblance to any wild original.

I propose to divide my subject into three sections, and will trust to make none of them too tedious for your patience. The first shall be upon the derivation and history of the flower; the next, the Auricula from a florist's point of view; the last, a very brief touch upon its culture. Not that I have any secrets which brevity should conceal. If there are any among my

hearers who so far only regard this flower with a cold and distant admiration as a new and rather curious feature in a flower show that ought to have novelty now and then to keep it up, I shall be glad if in any degree I can show them how very much more than this a flower is to those who love it.

DERIVATION.—In the botanical census by which plants are grouped according to natural orders the Auricula is classed with the Primulaceæ. The family is a large one. Some of its members bear such resemblance to our most familiar type, the Primroses, as to be easily recognised for Primulas; others are apparently so far removed both from it and from each other as to seem no blood relations at all, but only distant connections in law—botanical law. However, I shall not here introduce a larger circle of the Primula family than may interest you as showing the resemblance and dissimilarity of consorted plants.

The nearest native relatives of the Auricula are the Bird's-eye Primrose (*P. farinosa*), frequent in the north of England in marshy places and on the broken banks of little moorland rills; and also *Primula scotica* of Sutherland and Orkney. But after the Cowslip and Polyanthus, what a mixed group the Primulaceæ appear! The Cyclamens belong to it, and the more aspiring Dodecatheons of America, with their not far dissimilar flowers clustered on tall stocks, as if they were the bold Oxlip form of the Primrose Cyclamen. Another classmate is the Anagallis, *A. arvensis* being the red Pimpernel of our arable lands, and *A. tenella* the slender little beauty that threads its way daintily among the green mosses on the peaty moors. Bitter marshes by the sea contribute a member to the order in the Sea Milkwort (*Glaux maritima*); while in that lovely aquatic *Hottonia palustris*, the Water Violet, we see the Primulaceæ taking a decided plunge under water, and here as it were a veritable mermaid Primula. Thus, from the top of a mountain to the bottom of a pond we have Primulaceous plants as widely separated in habitat as in habit. Besides the Primula Auricula of the Alps, the remote ancestor of our cultured flower, and one given by Paxton as *hortensis*, a European plant with name suggestive of some degree of cultivation, and flowers described as variegated, there are several Primulas of Switzerland and Southern Europe interesting as bearing a resemblance to the Auricula on a small wild scale. There is *P. marginata* with serrated mealed foliage and lilac flowers with rudiments of that meal in the centre, which is so intensely developed in the Auricula. Also *P. Balbisii* with a habit of foliage in white and green quite that of the Auricula, and half pendant flowers “like Cowslips wan that hang the pensive head,” and also slightly mealed in the eye. Again, *P. intermedia*, *P. pubescens*, *P. viscosa*, *P. villosa*, and others with pink and purplish flowers, have the habit of diminutive Auriculas. Still all primitive and allied forms are a far remove from the derived flowers of so long a period of culture as extends over three hundred years, for Gerard states that prior to 1597 there were Auriculas in English gardens. These early varieties were yellows, browns, and purples; and as you look upon the beautiful flower to-day in its jewellery of emerald and pearl, and its velvet textures of many lovely colours, you will wonder how all this investiture of different orders of beauty descended upon a little pale wild flower of the Alps. The first advances from the purely wild type were the results of carefully seeding this sportive flower, which in its attribute of infinite variability from seed has the fundamental qualification for being what is known as a florist's flower. But

more full and rich in illustration of this than written history could well be are the interesting revelations which the Auricula makes to the raiser of seedlings.

In them the history of the past will repeat herself in varied retrospect, and among those that must be discarded as missing the standards they were meant to equal or excel are many whose faults are but tracings of their derivation towards its distant source. They show how petals now substantial, round, and flat, had been flimsy, frilled, and pointed, the white meal thin and ill-defined, the curious edge of green a slight and broken rim.

**HISTORY.**—In a glance at the history of the Auricula there comes, of course, the interesting question of its first introduction into England. When is perhaps not so exactly known as where, on which point there is the evidence of well-kept local tradition corroborated by local evidence that its early English home was especially Lancashire.

It is known that Flemish weavers in woollens, driven from their country by persecution for their faith's sake, settled about 1570 at Norwich, Ipswich, and in Lancashire villages in the neighbourhood of Rochdale and Middleton. As things of home too dear to leave behind them, these refugees brought with them their favourite flowers, the Tulip and Auricula. It is no matter for surprise that for about fifty years after this we have no record of Auricula culture. These early growers would doubtless for a time be shyly looked upon as aliens, and it would lead them to keep their occupations and interests a great deal within the bounds of their own communities; but in 1725 we have evident proof that the culture of the Auricula was established in Lancashire.

Parkinson in his "Theatre of Plants," 1640, names twenty-five varieties of Auricula Ursi, or Beare's Ears, or French Cowslips. They are described by colours such as Heaven's "blew," striped and double purple, blood red, sundry blushes, paper white and yellowish white, &c. In an old manuscript of 1732, and which was published in the "Florist" many years ago, Beare's Ears or Auriculas were quaintly classed as "pures," probably what we should call selfs; "flakes or stripes," which I confess I do not recognise by the description; and also "bizarrs," spoken of as admirably variegated with meal and colours, and raised in England or brought from thence.

Auriculas were grown abundantly in the Lancashire districts until about 1830, when a great change in the habits of the people, who were hand-loom weavers, began to take place. Steam power and the factory system were being developed about 1825, and during the transition from hand to powerloom weaving, those whose bread "came through the shuttle eye" felt the change severely, and numbers of them were for a time in great distress. From the handloom that filled the long window they could now and again in the day break their time and work longer at night, and in this way their favourite flowers received the most constant attention, which at the same time refreshed the toiler himself with a healthful winsome recreation. But the long peremptory hours of a factory day rendered all this impossible. The great hard-featured mills grew up over green fields and garden grounds, mammoth organisms in brick and mortar, stone and iron, seeming, in their high chimney stalks, to send up a mighty hideous sort of flower stem, blossoming with black wreaths of smoke and a sulphurous perfume. Then the scattered villages grew and conglomerated into towns—the light of the old hand-weavers' windows died out, and seemed to be concentrated in the gas-light glare from the long stages of windows in the mills—the familiar clatter of the handloom ceased, and the click of the shuttle that wove the silk or wool, as the tick of the old clock spun out the time. Under the changes of those days many ceased to grow their old favourites for lack of time or space, and also because they would not see the flowers languish under any unwonted neglect. Their little shows had nothing of the grand accessories that are here, but the very spirit of vitality was in these florists in their sincerity, patience, and love. The shows were held in the upper room of some old inn, and made a very lively sensation for miles around—a stir like a village wake or fair. What excitement it was for the anxious exhibitors assembled in the room below to wait for the winning plants being sent down from the "upper element" where the judges were deciding fates! In the later part of the day followed songs and anecdotes and florist gossip; and at going-home time the assembly dispersed with the first-prize men conspicuous by a gleaming copper kettle in hand. Always kettles for the best flower in the room, and for the first in every class. Perhaps none was a prouder man that day than he who as a new beginner carried the "colt's kettle" home!

The Auricula has been a flower neglected for many years till lately. For inexorable causes such as those that parted it from old friends like these we can feel sympathy, but not for every reason that has made it now so scarce. Mr. Lightbody, whose

name is so associated with Auriculas, used to tell me he had many wasteful customers who every spring would write for a relay of large plants, much as they might order spring bulbs from their seedsmen. They kept Scotland going as we kept Holland, for Lightbody who grew his own plants mostly in long-legged garden frames would have been again and again exhausted but for being able to fall back on large collections in different parts of the country. The Auricula is no such forgiving plant as the docile Hyacinth, that in return for having its heart scooped out like an Apple in the cook's hand, will return a hundred-fold in good for evil, in repaying the unkindest cut of all with a handful of useful offsets. Auriculas grown only for a brief display and left to pine in neglect afterwards, are not in the hands of men worth the name of florist.

I have spoken of the Auricula in Lancashire, for that is such a representative county in the history of the flower; but fifty years ago we find by old records that almost every district in Yorkshire, Staffordshire, Cheshire, as well as Lancashire had a circle of Auricula growers. So, too, had many other counties. In Cambridgeshire lived Richard Headly, a renowned florist, and the raiser of one of our best Auriculas—George Lightbody. There were also shows and societies in the home counties, and many growers about London, where Page's Champion and many other sorts of lesser fame were raised.

But the Auricula is the oldest florist flower in precedence of excellence. There were good Auriculas when there were no Roses such as there are now; when the Pelargonium was a thin imperfect thing, the Cineraria a star far from her present magnitude; when the Calceolaria had little of that fine inflation in which it now appears—a floral exposition of the ambitious frog, who in the fable perished miserably in the attempt to enlarge himself to something much above his sphere; when Fuchsias were almost as they had been found, and the Gladiolus was yet but a botanical curiosity.

I am indebted to the researches of one of our oldest florists, Mr. John Slater, for some interesting information about the earliest edged Auriculas. He has spent a long life in the very centre of Auricula culture, acquainted with many a grower and even raiser of the old sorts. Where I mention names I must ask you to attach more than a nominal importance to them, in that the Auricula being a derived flower not found anywhere, no vast importations and auction sales of it are possible. Names have therefore here the weight of species. The raiser is the introducer, and his little garden is a native country. The very names are largely suggestive of the estimation and good report in which the flowers were held by their raisers. Hence they are expressive of greatness and supremacy; and we have—*e.g.*, Champion, Hero, Conqueror of Europe, Rule All, Revenge, Bang Up, Glory, Incomparable, Freedom, Emperor, Ringleader, Complete, True Blue, and so forth.

Very many of the old florists were also Gooseberry growers; and here, too, are names of like great import—Conquering Hero, Overall, Leader, Thumper, Crown Bob, London, Wonderful, and, not last, Roaring Lion. No one had the diffidence to name his new pet berry Second Fiddle or Knock Under; and if he were a bird-fancier he did not select Tomtit or Humming Bird, but chose him Ostrich, Eagle, or Peacock. It is quite time that our newspaper press, from the large dailies to the small provincial weeklies, had their seeming ignorance of what the big Gooseberry really is revealed to themselves. It might be that no dish of the genuine berry had ever smiled on those editorial tables, or we should not have the big Gooseberry a gibe and synonym for that which is vapid and inflated. From the florist, however, has spread the desire for great names to the producers of excelling fruits and vegetables, and is now indulged in alike by the knights of Flora and Pomona, and of the presiding deity of the kitchen garden, Chloris the Goddess of Greens.

(To be continued.)

#### FRUIT-GROWING FOR MARKET.

LIKE music, fruit-growing hath charms, not only to the longing amateur, but to the old practitioner whose years of abundance have been sufficiently numerous to enable him to say that the pleasures of hope are not always delusive in connection with it. Yet even he owns with a sigh of regret how often the promise of his teeming trees has been blighted by ungenial spring weather—so often, that had he depended upon some kinds of fruit for the means of subsistence he would long ago have been ruined. When, therefore, the culture of fruit for market is entered upon in good earnest every sort of fruit that is likely to answer should have a trial. Apples, Pears, Plums, Cherries, are justly accorded a leading position; but what would the fruit-grower do when the blossom of his trees is destroyed by frost and cold wind, if he could not

turn to Strawberries, Raspberries, Gooseberries, and Currants, to all of which a fair proportion of his land is wisely devoted?

Eleven years ago in the pages of the *Journal*, vol. xix., page 97, attention was called to the fact that Black Currants under high cultivation were extremely profitable. The annual crop of some forty fine bushes was shown to be four gallons each, worth 1s. 4d. per gallon, and it was computed that an acre of such bushes would yield in a single year the astounding sum of £322 13s. 4d. The calculation was as worthy of attention then as it is now, for it was based upon the produce of bushes that I had known and watched for many years. It may be said that its more general culture upon an extensive scale would reduce the price of the fruit; so it might, and yet allow a very handsome margin of profit. Bring down the price to a penny a quart, and you still have a total of £80 an acre. So, too, with other bush fruits. I once knew a farmer who had a long steep bank of capital loam overlaying a bed of limestone, unavailable for ordinary crops, which he planted with Warrington Gooseberry bushes that proved very profitable. Raspberries and Strawberries, too, always give abundant crops under good culture, and with both it may be asserted that within certain limits the higher the culture the finer and more abundant the crop. I may well be positive in this matter, for I have had to bring a barren soil into a suitable condition for the growth of all kinds of fruit. Another great advantage belonging to the culture of Strawberries and bush fruits is, that whenever a superabundant crop glut the market, part of the supply can always be diverted advantageously to the fruit preserves. What is known as "people's jam," is frequently, I fear, an unwholesome compound that would be driven out of the market by an increasing supply of really good fruit.

However hard times may be it is unlikely that an ordinary farmer will ever turn his attention seriously to fruit culture. He is not wont to adopt new ideas readily, and the result of his planting fruit trees is apt to be of a very speculative character indeed. With him it is literally a "sticking in" process. A hole is dug, the roots crammed into it, the soil thrown back and trampled down, perchance a few bushes are bound round the stem to keep off sheep and cattle, and the tree is left to its fate. I could point to many a man clever enough in all the ordinary duties of a farm, yet who is quite ignorant of the simple operation of tree-planting. It is a mystery past his comprehension why the young trees planted in the vacant spaces of his old orchard make such slow progress; why trees that have been there for five or six years are very little larger than when first planted. It is undoubtedly true that there are farmers who are perfectly familiar with all the branches of hardy fruit culture; but then they are to the manner born, and fruit-growing has always been part and parcel of their calling. Apart from such considerations tenant farmers require prompt annual returns for the capital which they invest in their holdings. But too few can muster the traditional £10 per acre of capital at the outset, and those who can would regard fruit trees as a very questionable investment. Freeholders having good soil and a favourable situation are the men to take up this matter. If they do it thoroughly, in the way Mr. Roger Leigh is doing at Barham Court, as was explained in the *Journal* a short time ago, they will succeed in getting a better interest for their capital than can ever be had from corn-growing.—EDWARD LUCKHURST.

#### NOTES FROM MY GARDEN IN 1880.

##### GREENHOUSE.

It may perhaps occur to many persons that there is little to be said from year to year concerning a greenhouse that is only some 20 feet long with its annexe of about 12 more, and indeed I have seen some remarks on it as if I were making mountains out of molehills and converting all my poor little ducks into swans; but as I know from many kind letters which I have received that many who are similarly situated to myself have derived both encouragement and instruction from my annual records I shall again notice it, and the rather because I am enabled to have some new features from year to year.

It was with much regret that I parted with the Camellias which have so many years afforded me so much gratification, but "necessity has no law;" and as they were reaching up to the top of the house, both taking up room and being too high up for their flowers to be seen, I was constrained to dispose of them. This I did on terms satisfactory to myself and to the purchasers, and I supplied their place with some excellent small plants about 3 feet high. Some of the varieties I could not replace; and the fine plant of Sarah Frost, connected as it was with sunny memories of Angers, I especially regretted to lose. Each year convinces me more and more that for those who have only a few plants it is much better to keep them indoors altogether than to put them

out, as so many do, in the summer months. The shade of Vines is just the place for them. Cyleamens are invaluable plants; they come in so early and continue so long in bloom, are so bright and clear, that there is nothing in the way of early flowers to compare with them. As I cannot venture on everything I have preferred them to the Chinese Primulas, more especially as the latter are of very little use for cutting, whereas the Cyclamen is one of the most useful plants we can have. I saved a good quantity of seed from the best varieties, and have quite a number of seedlings, which I hope will take the place of the older plants, which after a few years seem to wear out. As with the Camellias, so some of my Azaleas had grown beyond my means of housing them. These also I disposed of, and replaced them with young plants of some of the more recent introductions from Belgium. Of these I had amongst others Charles Leirens, a dark salmon; Apollo, a splendid large white; Madame de Grevé, deep rose edged with white; Imbricata, a very curious Balsam-like flower, but unfortunately the plant seems to be not so good a grower as some of the others; but in size, freedom of bloom, and brilliancy of colour these modest Belgian varieties are far in advance of either the older foreign or English ones.

I had some new Show Pelargoniums from Slough. It may be difficult to see the advance that is made, but on looking back to those of a few years since the increase in size and excellency of form, and now and then a new break in colour, is at once recognisable. Two of these have a melancholy interest—Amethyst and Bridal, raised by the late Rev. T. Brébaut of Guernsey, or rather by his wife, who died but a short time before him. He wrote to me a couple of years ago telling me of her success in raising these varieties, and the severe wrench that her death made so depressed him that his own soon followed. Amethyst is a beautiful rich purple flower with deep maroon top petals. Bridal is pure white without any spot whatever, very free, and with slightly scented foliage. Douglas (Matthews) is rich crimson; lower petals dark glossy maroon; top petals, white centre; fine shape and substance. Goliath (Foster), crimson, with purple maroon spots on top petals; clear light centre. Invincible (Foster), rich crimson top petals, lighter centre; free, dwarf habit. Magician (Foster), top petals dark maroon with crimson margin; lower petals rosy crimson, white centre. Queen of Scots (Foster), top petals orange with rose edge; lower petals rose, white centre. Valiant (Foster), crimson, with dark maroon top petals, shaded crimson, and rose edge. Sensation (Foster), top petals black maroon with crimson margin; lower petals bright rose. Mr. Foster of Clewer still keeps at the head of all raisers of this very beautiful but comparatively speaking neglected class of flowers. There is no class of flowers so satisfactory for winter blooming as the Zonal Pelargonium and its hybrids, for there is now such an intermixture of the Nosegay blood that it is hard to tell them. The various shades of colours are so beautiful—scarlets, crimsons, pinks, white, salmon—that even when you get a bloom here and there on a plant it tends to enliven the house wonderfully. I have grown many varieties, most of which are so fine as to make us wonder where the improvement is to come from. I never keep up the temperature of my house to any particular point, my sole object being to exclude frost, but yet this gives me quite a bright display of flowers.

Of miscellaneous plants I may say that I have found the *Libonia floribunda* most useful, giving bright colour to the house and useful for cutting, although it has the bad property of soon fading. *Primula cortusoides amoena* and *Primula pulcherrima* have also been of great use; while the *Lachenalias*, both pendula (which is early) and tricolor, are excessively gay and do famously for cutting. I am, perhaps, prouder of a fine pan of *Disa grandiflora*, the only greenhouse Orchid I possess, than of any other plant in it. It is this year throwing up, I hope, several blooms and looks very strong. I keep it close to the door and a syringe near to it, and every time I go into the house give it a sprinkle. It is planted in a shallow pan about 8 inches deep in some good peat and sand, and nothing could be more satisfactory than its progress. The plant does not require rest. As soon as the bloom is over I repot it: the young shoots for the following year will then have pushed through the soil at the base of the old, and it is ready to commence again. *Francoa ramosa* I have also found a most useful plant for cutting from; its graceful sprays of white flowers are very charming in a tall vase. *Ixias* I did not succeed with, as I depended on my own bulbs, and experience has taught me that this is a broken reed to depend upon. Like the Hyacinth, it almost seems as if we must look to imported bulbs for good blooms.

Later on in the season Fuchsias, Lilies, and other plants kept up a succession of bloom; and during the earlier months of the year, when flowers are the more valuable, I was always able to cut



a sufficient number to fill a centre vase and stand for the dinner table, and also to have sufficient Camellia blooms for four specimen glasses for the drawing-room. These are now filled with Azaleas, which will probably last until the Tea Roses from the wall gladden our eyes, as it is to be hoped this bitter east wind, which keeps everything back, will not always continue.

Now, I do not lay claim to anything of superior cultivation, but simply to this, that by a judicious selection of plants to be grown and by a certain amount of care bestowed upon them I am enabled to have a great deal of pleasure out of a very limited space, and thereby to offer some encouragement to those who are similarly situated, and who are often dispirited because the directions given for culture and the plans to be adopted involve a much greater expenditure of money and a larger amount of space than they have at their command.—D., *Deal*.

### BIRMINGHAM SPRING SHOW SOCIETY.

APRIL 18TH AND 19TH.

THE first Exhibition of spring flowers held by this Society took place on Monday and Tuesday last in the Town Hall, Birmingham, the satisfactory results achieved auguring well for the future excellency of what is likely to be an annual Show of considerable interest. The weather, that most important factor in the success of floral exhibitions, proved all that could be desired, the first day being particularly fine, encouraging intending competitors to bring their productions and the public to visit them. Although some of the prizes were not very keenly contested for, the exhibits on the whole were of good quality, freshness and vigour characterising the majority of plants staged, while plants were abundant and diversified. They were all shown to excellent advantage by the taste exercised in the general arrangement, which was creditable alike to the exhibitors and to those entrusted with the management. The bulk of the plants occupied three tables extending the entire length of the Hall; the central one, 14 or 15 feet broad, bearing the stove and greenhouse plants, several groups and miscellaneous collections; the other two being occupied with Cinerarias, Hyacinths, Tulips, Spiræas, Ferns, and Mr. B. S. Williams' pretty group. In the corners of the Hall were tasteful and bright groups from several local nurserymen, which assisted materially in imparting an agreeable finish to the general pleasing effect.

The classes were in two sections, the first forty-eight being devoted to gentlemen's gardeners and amateurs, while ten were open to all exhibitors. A great variety of plants were provided for; the prizes, though by no means extravagant in value, being in the chief classes at least sufficient to induce interesting, and in a few instances close, competition. In some classes there was room for much improvement, but another year probably these defects will be in a great measure remedied. No doubt if the financial results of the Exhibition prove satisfactory more liberal prizes will be given, stimulating growers and exhibitors to greater efforts, and resulting in the production of a really first-rate spring Show.

**Bulbs.**—Taking the gardeners' and amateurs' classes in the order they are enumerated in the schedule, the first demanding notice are those devoted to bulbous plants, of which the Hyacinths were the most numerous. The chief class was for eighteen Hyacinths not less than ten varieties, three collections of average merit being staged. The prizetakers were J. E. Wilson, Esq., Edgbaston (gardener, Mr. W. Jinks), C. E. Matthews, Esq., Edgbaston (gardener, Mr. W. Jones), and J. Jaffray, Esq. (gardener, Mr. F. Denning), in the order named. Three other classes were also devoted to Hyacinths, but the general quality was below the average, several collections appearing to be very much drawn, as though they had been either grown some distance from the glass or crowded by other plants. The spikes, too, were rather weak and the colours dull, but some of these defects were possibly due to its being somewhat late in the season for such plants. Two classes were appropriated to Tulips, but in neither were first-rate collections staged. Mr. W. Jinks had the best six single varieties, and L. Hayman, Esq., Edgbaston (gardener, Mr. G. Newell) held a similar position in the class for six double varieties; the other collections being very irregular, including a few good specimens, and many that were of very inferior quality.

**Miscellaneous.**—Following the classes for bulbs were a number devoted to miscellaneous flowering plants, especially Dielytras, Spiræas, and Deutzias. For two specimen Dielytras Mr. W. Jinks and T. Webley, Esq., Selby Oak (gardener, Mr. W. H. Dyer), were the principal exhibitors, both contributing very well-grown specimens flowering freely. The premier collection of three Deutzias was from Mr. Jinks, the plants being 4 feet in diameter and flowering most profusely; indeed they were some of the finest we have seen this season, although not trained in any shape. Messrs. W. Jones and W. H. Dyer followed with smaller examples of this useful plant. Spiræas were well represented, especially in the first-prize collection of six staged by Mr. Jinks; they were in excellent condition with abundant blooms. T. Chatwin, Esq., Edgbaston (gardener, Mr. C. Lusted), and Mr. Newell securing the other chief prizes with plants but little inferior to those already named. One collection only of Roses in pots was staged—namely, those in the class for three, for which Mr. W. H. Dyer obtained the first prize; they were moderately

healthy but backward, very few of the flowers being expanded. A few good Azaleas were shown, but the majority of the specimens were thin and uneven, though flowers were abundant, large, and brightly coloured. The chief prizetakers were Messrs. W. H. Dyer, W. Jinks, and W. Jones. One large pyramidal specimen of Fielder's White from the first-named was probably the best in the Show; it was about 6 feet in height, well trained, and clothed with blooms from the rim of the pot to the highest branches. Cinerarias were represented by several neat collections, the best being contributed by Mr. W. H. Dyer in the class for six; these were compact, the flowers of moderate size and brightly coloured. The first prize awarded for them was well merited. Messrs. F. Denning and W. Jones secured the remaining prizes both in this class and in that for three plants with specimens a little less compact than Mr. Dyer's.

**Stove and Greenhouse Plants.**—These, though not very numerous, produced a pleasing display on the central table. For six specimens Mr. F. Denning was the most successful exhibitor, as he easily secured the premier award with neat examples of *Diosma capitata*, a good pyramidal Azalea *Iveryana*, and a well-flowered *Rhynchospermum jasminoides*; but the finest specimen of all, both in this and the other collections, was a plant of *Dendrobium nobile* in a 10-inch pot. On a rough estimation there could scarcely have been less than one hundred growths, some of which had over a dozen flowers. Mr. W. Jones was second with smaller specimens, notably a well-flowered *Ixora Williami*. For three stove and greenhouse plants Mr. W. Jinks was first with a tall *Ixora alba*, a large *Tabernaemontana coronaria flore-pleno*, and an example of *Medinilla magnifica* nearly rivalling the *Dendrobium nobile* referred to above; it was in admirable health, and had not less than fifty large pendulous panicles of coral-like flowers.

**Fine-foliage Plants.**—In the class for three plants with ornamental foliage in pots not exceeding 12 inches in diameter, Mr. W. Jinks again obtained the chief position with a fine specimen of *Dracæna Mooreana* 6 feet high, bearing broad deeply coloured leaves; *Croton variegatum* of good colour, and *Dieffenbachia Bausei* with ten vigorous growths and pretty mottled foliage. Mr. W. Jones followed with *Pandanus Veitchii* in satisfactory condition; and among others Mr. W. H. Dyer obtained the third place with small but clean specimens. There was only one entry for three Ferns—viz., those from Mr. W. H. Dyer, comprising *Davallia Mooreana* 5 feet in diameter, with large healthy fronds; *Gleichenia dichotoma*, also fine, 3 feet in diameter; and *G. speluncæ*, smaller but similarly fresh and vigorous. Mr. F. Denning was the only exhibitor of three Palms, securing the premier award for graceful examples of *Kentia Fosteriana*, *Phoenix sylvestris*, and *Latania borbonica*.

**Orchids.**—These were by no means so strongly represented as might have been expected, for only one collection was staged—namely, that from C. Winn, Esq., Selby Oak (gardener, Mr. T. Shields). This, which received the first prize, comprised *Zygopetalum crinitum cæruleum* with two large spikes of its peculiar blue marbled flowers; *Odontoglossum triumphans* with four fine panicles; and *Dendrobium Bensoniæ* in beautiful form with white sepals and petals, and a yellow lip blotched with maroon.

In the open class the display was chiefly confined to Auriculas, those from Mr. Sharp, Perry Barr; Sir Josiah Mason, Erdington; and Messrs. Pope & Sons, King's Norton, being the best, and securing the principal prizes for their owners. Cut flowers were not very abundant, but several of the exhibitors already enumerated contributed stands of blooms, the Orchids from Mr. C. Winn being particularly noticeable.

**Groups.**—Without the groups contributed by the nurserymen the display would have been considerably less effective and interesting. One of the most important and beautiful was that from Mr. B. S. Williams of Upper Holloway, which attracted much attention from the visitors. It contained an assortment of choice Orchids, Palms, Ferns, and many other plants, among which the Cyclamens were particularly noteworthy for the size of their flowers. A handsome specimen of *Oncidium sarcodes* was also observable, with a panicle of richly coloured flowers over 4 feet in length. Plants of Azalea Mrs. Carmichael well indicated the excellent qualities of this variety; and among many other plants in flower comparatively rarely seen were *Rudgea macrophylla* with a dense head of white flowers, and *Toxicophlæa spectabilis*, also bearing white flowers in axillary clusters. Near this group in one corner of the Hall was a very tasteful group from Hans Nicmand, Edgbaston. It had a groundwork of Palms, Tulips, Dielytras, Spiræas, Heliotropes, and Mignonette, among which in raised cork baskets were a few selected Palms and Ferns, imparting a very pleasing effect to the arrangement. Mr. Thomas Hewitt, Solihull, had a corresponding group at the opposite corner of the Hall, consisting chiefly of Pelargoniums and baskets of seedling Auriculas and Primroses. Among the Auriculas a double maroon-coloured variety with large flowers was especially noteworthy. A basket of *Anthurium Schertzerianum* edged with Lilies of the Valley was attractive, the contrast between the scarlet spathes of the Anthurium and the white flowers of the Lilies being very striking. Mr. R. H. Vertegans, Chad Valley Nurseries, Edgbaston, contributed a large group, which occupied one end of the central stage. This was principally composed of Hyacinths, Tulips, Lilies of the Valley, and double Cinerarias, which were gracefully arranged with Variegated Maples, Palms, Ferns, and similar plants. In addition to these there were a group of Pelargoniums from Messrs. Pope

and Son, and collection of flowering plants from Messrs. W. H. Dyer and F. Denning, for the two latter of which prizes were awarded.

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 21. NEW SERIES.

EVEN when we are pursuing that system of classifying insects which seems as natural as is possible, we are obliged to put into one and the same group, at times, species which in size, appearance, and habit do not present much resemblance. The *Phytophaga*—last in the division of beetles with four-jointed tarsi, and to which also belong the *Rhynchophora* and the *Longicornes* already noticed—look at first an anomalous group. Certainly the name given them is not specially appropriate. “Plant-devourers” they are, it is true, but so are many other tribes in this order. Comparing them with the preceding group, we perceive that they lack their elegance of form; no wonder, for the *Phytophaga* has usually bulky abdomens, oval, round, or perhaps squared. The antennæ are observably short, and the head, through absence of neck, appears to sink deep into the thorax. Yet there are in this group several beetles that can boast of beauty, several also, it must be owned, that have long been known to be mischief-makers in our gardens. Though the bulk of the species live upon the land, a few are partially aquatic, belonging to the genus *Doracia*. About twenty species have been noted in Britain, the larvæ of which live within the stems of water plants, such as the yellow Water Lily and the Reed Mace. The beetles are to be found running over the leaves of these plants, and they can bear submergence without injury. Moderate in size, mostly under half an inch in length, they, like many of the smaller beetles, display a great variety of colour; even in the same species specimens are found with blue, green, red, and yellow tints mixed with darker shades. These insects would be suitable enough as ornaments for the aquarium if they would thrive in confinement.

The genus *Crioceris* contains three species. One is common—the well-known Asparagus beetle (*C. Asparagi*, fig. 71), a tiny creature often seen in hundreds or in thousands about the plants at the beginning of summer. The head and legs are black, but the thorax is red, and the black of the wing-cases is varied by a red line round the edge and six minute spots of white. Small in size as it is, this beetle if alarmed or angry produces a squeaking sound, which might serve as a test to try whether a person’s sense of hearing is acute or dull. I am inclined to think that some authors have rather exaggerated the amount of harm that is done by the species to Asparagus beds. For one thing, it must be remembered that the plant is not attacked during the period when the shoots are cut for the table, the beetles resorting to it in order to deposit eggs when the foliage is developed and the seeds are forming. These eggs are occasionally discovered, but from their minute size they can seldom be removed. The larvæ, thick and wrinkled grubs of greyish hue, are seldom seen in motion, and they adhere very firmly to the plant by their legs; were it not so they would soon be dislodged as the Asparagus waves to and fro in the summer breezes. Having reached their full size (unless the gardener has cleared them off with the branches they may be infesting) they make tracks for the earth, and there conceal themselves until the warmth of another season summons them forth as lively beetles. The rare *C. merdigera* is of a bright scarlet colour, which rapidly fades when the beetle is dead; this has occurred upon the leaves of Lilies.

The beetles of the genus *Cryptocephalus* we mention briefly, since they seldom occur in or near gardens. Their favourite resorts are woods and patches of dense herbage, where they are difficult to capture, since they drop at the slightest touch, or even at the sound of an approach. Delighting in sunshine, their colours are often bright; and they have this peculiarity, that the head can scarcely be seen from above. The larvæ feed upon leaves, concealing themselves in a slight cell, perhaps to escape the researches of birds.

In the family of the *Halticidæ* are numerous species, small in size, but with powers of destruction that place them amongst the conspicuous enemies of vegetation. The antennæ are inserted between the eyes, and the wing-cases are waved at their edges; the thickened thighs are, however, the most notable characteristic of these beetles, suggestive of an ability in leaping, by the exercise of which some species have obtained their popular name of Turnip-fleas or “Hoppers.” It is ascertained beyond all doubt that the Turnip is resorted to by more than one species, but prominence must be given to that which is called *Haltica* (*Phyllotrita*) *nemorum* (fig. 72), which does damage to the crops every season, and sometimes entirely ruins the first sowing in a locality. This yellow-striped beetle cleverly attacks the Turnip while it is young and tender, for the matured plants seldom exhibit signs of

its presence, though several broods have been observed in the course of the season, and the insect also visits the Mangold Wurtzel, the Beet, and the Radish.

The work of destruction is begun by the beetles, which, when engaged in the business of depositing eggs, nibble the seedlings that have just appeared above ground. According to the observations of M. Le Keux, these eggs are only laid at the rate of one daily by each female beetle, upon the under side of the leaves, and so distributed as not to be easily discovered. They are hatched in about a fortnight, and burrow directly into the young leaves, where, indeed, they remain until they have completed their growth. It has been supposed that the larvæ feed externally, but, probably, those that have been detected in the act of crawling upon Turnip leaves were only migrating from an old burrow to a new one, for those who have reared specimens in boxes have found that they will occasionally pass from leaf to leaf. This larva is long and slender, with six short but strong legs. The track it makes within the leaf is little apparent until the creature is out of it and the damage is done. The pupal state is passed in the earth, hence some persons have argued in favour of turning over the ground about that period and burying the surface

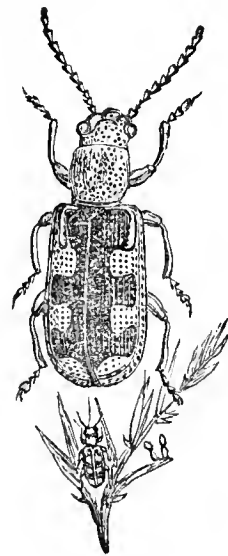


Fig. 71.—*Crioceris Asparagi*.

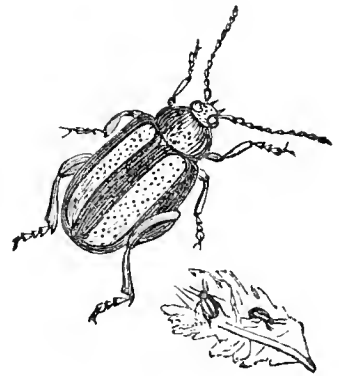


Fig. 72.—*Haltica nemorum*.

soil in which the insect lies, when it is unlikely to be able to extricate itself from the mass of earth.

One of the very small species is *P. Brassicae*, which occurs among the plants from which it has been named, mining the leaves in the manner of *P. nemorum*. This is also deep black, but upon the wing-cases there two streaks of yellow. Mr. Reeks was the first to call attention to the habits of *Haltica fuscicornis*, which in some neighbourhoods and during seasons that favour its increase destroys the Saintfoin while young and various leguminous plants. This species has brownish antennæ; the head, thorax, and legs are red, and the eyes black; the wing-cases are metallic green, highly polished. Spring is the season for the beetles, and the larvæ feed during May and June; but it is one of those species that is unfavourably influenced by heavy rains. During the summer of 1871 it was reported in some journals that this *Haltica* appeared about Hampshire as a destroyer of the mixed growth that is to be seen in the ordinary cottage garden, but there is here, we presume, an error or exaggeration. Insects of this family do not restrict their attacks to the humbler species of the vegetable kingdom. A species of *Galeruca* has occurred upon the Elm, the larvæ feeding in companies and laying bare the lower branches. *H. oleracea* has been long known as an enemy of the Vine in warm countries, both beetles and larvæ being injurious to the leaves. Britain as yet has had, fortunately, small cause of complaint, perhaps owing to our changeful climate.—J. R. S. C.

**HARBINGERS OF SPRING.**—In these scientific days we have daily forecasts of the weather which may be expected within the next twenty-four hours, but how small is the percentage of correct forewarnings! From my observation I am led to believe that some birds must know more of this subject than we do, for I have noticed that Starlings or “Shepsters,” as they are locally called in some parts, will not commence building their nests nor taking possession of their old habitations until mild spring weather has fairly set in. They come at intervals in February and March just to have a peep at their old haunts, whistle to each other from the chimney tops, perhaps stop a day or so, but go away again evidently convinced that it is too soon. This year they paid a



very early but short visit and went away. I heard and saw two or three "prospecting" about my chimney-tops, but they did not like the harsh east wind and the look of the trees covered with snow. When they return and settle down to their business in life I shall think it the right time to put in seeds in the open ground, and not before that time. I remember when we had a mild winter the Starlings came, built and fed their youngsters with what they could get, and culled my Crocuses as salad. This year the Crocuses will escape that. A Swallow has been seen here, and I see that the Wryneck has also appeared as a precursor of the Cuckoo. An old man near me says:—"I reckon they've had a bad winter where they've been, and they want to see if they can't better themselves by coming here." There is a good deal of fact in his remark; the want of food "compels" many, if not all, birds to migrate.—G. O. S., *Lancashire*.

#### THE CRYSTAL PALACE.

AMONG the numerous and varied attractions offered to the public by the Manager of the Crystal Palace Company, there is one that deserves a line of acknowledgment in the columns of the *Journal of Horticulture*. In the central transept there is a huge stage protected by an awning, upon which is the finest and most varied collection of spring flowers in pots that I ever saw. In the top rank are Palms and Tree Ferns, then Azaleas, Cytisuses; next a grand collection of Tulips, Hyacinths, Daffodils, Narcissi, and the front rank is filled with Begonias, Funkias, and other foliage plants. The display of colour is really most attractive, and I would recommend any of your readers who want to see a beautiful sight to journey down to Sydenham one day this week. The small tropical department is now very pretty. The Tree Ferns round the fountain are very fine, and the other plants are skilfully arranged; in fact the whole of the floral arrangements indoors are very good.

Out of doors there is not at present much to interest the gardener, but there are several beds near the rosery which are full of bulbs, and which before these lines are in print will be in full beauty. Wallflowers are also much used, particularly the dark-coloured varieties, and the Golden Feather Feverfew marks out the patterns. Many kinds of bulbs are employed, and with the purple Aubrietia and white Arabis make very pretty beds. The few Roses that I have known for fifteen years are terribly cut, in fact half killed by the frost. The rosery, indeed, exists but in name, and Mr. Head would do well indeed if he could induce the Directors to spend a little money there. The huge panorama of the siege of Paris is nearly ready, and as the visitors to it must pass through the garden, and those who come from the station by way of the rosery, the latter will be much observed, and its forlorn condition much commented upon. A school of floriculture is to be commenced on the 1st of May, and if Roses and florists' flowers continue to be neglected I cannot see how the students can learn their business properly.—WYLD SAVAGE.

#### ROSES ON THEIR OWN ROOTS.

VERY few, I should imagine, of the constant readers of the *Journal of Horticulture* would think of doubting assertions made by Mr. Taylor. At the same time to see is to be convinced; and could others visit Longleat and judge for themselves, as I recently have done, what the Rose on its own roots is capable of doing, there would soon be a change in the general practice. The splendid plants of Teas and Hybrid Perpetuals, both in pots and the open ground as grown there, compare most favourably with those specimens of the same varieties on either dwarf or tall stocks usually seen in other gardens. Many of the two-year-old specimens of the three varieties of Teas alluded to on page 208—viz., *Souvenir d'un Ami*, *Catherine Mermet*, and *Devoniensis* in 12-inch pots, were 6 feet in height and remarkably healthy; they had been flowering nearly all the winter and still had good blooms. Those in the open, and which I trust to see when at their best, may be likened to a strong stool of Manetti which the grower has inadvertently continued pruning year after year. In other words they are great bushes with medium-sized healthy growth apparently quite uninjured by frost. Mr. Taylor may well declaim against the "mop-headed parasites."—VISITOR.

HEBECLINUM OR CONOCLINUM IANTHINUM.—Some years ago this plant was considered worthy of being exhibited in a collection of flowering stove plants, but, like many more, it has been cast aside for some that are less worthy. It succeeds best in an intermediate house, but flowers a month later than in a stove. It produces its large tufts of lavender-coloured flowers in great pro-

fusion, and when shaded from the direct rays of the sun continues in bloom a considerable time. When not in flower the foliage is very ornamental. Small plants grown in 6-inch pots produce fine heads of bloom and are useful for decorating purposes. It is a good plan to set the plants outside in the summer months to have the wood well ripened.—STIFFORD.

#### HIBBERTIAS.

CLIMBING plants which possess either attractive foliage or flowers are both useful and ornamental in stoves, greenhouses, and similar structures, where the chief object is to produce a satisfactory display with as much economy of space as possible. The rafters of span-roofed houses and the back walls of lean-to's can always be profitably covered with such plants, as they not only add to the general effect but often afford a very acceptable supply of flowers with comparatively little trouble. In the greenhouse and conservatory particularly the appearance would be very unsatisfactory without climbing plants to remove the formality of bare roofs and walls, the results being pleasing in proportion to the taste exercised in the selection and arrangement of the plants employed for that purpose. Diversity in the colours and forms of the flowers and some variations in the habit are



Fig. 73.—*Hibbertia dentata*.

the principal points requiring attention, and there are now so many suitable plants grown that it is not difficult to obtain a good collection combining all the desired qualities. One of numerous genera containing climbing species adapted for growing in cool houses is that under consideration, of which at least one form is generally well known, some of the others being occasionally seen in moderately large collections. The Hibbertias cannot rank among the most useful plants as the flowers are somewhat fugacious, but as these are very freely and successively produced a bright display is maintained for a much longer period than might be expected from the short duration of the individual flowers. The species present more diversity in habit and foliage than in their flowers, for the latter vary chiefly in size, the colour being uniformly light or dark shades of yellow—tints which are common in flowering plants, but in the case of the Hibbertias the contrast with the bright green leaves is rather pleasing.



The cultural requirements of these plants are not very numerous. A soil composed of good turfy loam not too heavy, with a fair proportion of sand, suits the more vigorous species, which are usually planted out in greenhouses and then trained to the roof or wall. A little attention is needed in pruning, removing the straggling or weak shoots and keeping the plant from insects, mealy bug being in my experience their chief enemy. For the dwarf or shrubby species which are grown in pots a little peat may be added to the compost, also providing thorough drainage, as they dislike any approach to a stagnant condition of the soil. With attention to these few particulars little difficulty will be experienced in the culture of Hibbertias, the chief of which are indicated in the following notes.

*Hibbertia volubilis*.—This, the longest introduced and best known member of the genus, is distinguished by its vigorous habit and large rather fetid flowers. The leaves are lanceolate in form, 3 or 4 inches long,  $1\frac{1}{2}$  to 2 inches broad, and dark green, the flowers being bright yellow with spreading petals, and are produced during the early summer months. Seeds were first imported about 1790, and in the two or three following years plants were raised in several collections near the metropolis and were thence gradually distributed. The plant was originally known as a *Dillenia*, but subsequently a new genus was constituted in honour of George Hibbert, Esq., of Clapham Common, a gentleman distinguished for his love of plants, who is said to have employed a collector at the Cape of Good Hope for some time at his own expense. In describing the plant under its new name, Andrews referred to Mr. Hibbert as one "whose knowledge and fervour in botanical pursuits, as well as liberality in his endeavours to enrich our collections from every quarter of the globe, but especially from the Cape of Good Hope, has not been exceeded by any, and we are well assured no name deserves a place on botanical record more than that of Hibbert."

*H. dentata*.—Like the last, this also has been known some time, having been first introduced at the early part of the present century, and it is now probably nearly as common as *H. volubilis*. It is not quite so strong-growing as that species, and has smaller flowers and leaves, but it is very neat and pretty, and does not possess such an unpleasant odour. The leaves are very dark green, frequently with a brownish tinge, which has a peculiar appearance. The flowers are dark yellow, about  $1\frac{1}{2}$  or 2 inches in diameter, and are produced singly in the axils of the leaves. The woodcut on page 312 represents a small flowering spray, and well indicates the principal characters.

*H. Rheedi*.—One of the dwarfier species but very pretty, and apparently greatly neglected, for it is rarely seen in cultivation. It is well suited for growing in a pot, and with a little attention in training an elegant specimen may be obtained, such as that which is frequently seen in the winning collections of stove and greenhouse plants exhibited at the Royal Botanic Society's Spring Shows by Mr. G. Wheeler, gardener to Lady L. Goldsmid, Regent's Park. This specimen is invariably admired owing to the profusion of small bright yellow flowers which clothe the slender branches, and of which some idea can be formed from the annexed engraving (fig. 74), representing a spray kindly forwarded by Mr. G. Wheeler. Referring to a plant presented by Messrs. Veitch, which is now flowering in the Cambridge Botanic Garden, my esteemed friend Mr. R. J. Lynch sends the following brief descriptive note—"Hibbertia Rheedi is an extremely charming plant. It has not the large flowers of its better known congener, *H. volubilis*, but a multitude of small ones. They are studded thickly over the plant, which is of wiry and much-branching habit, and bears numerous linear leaves. It is somewhat rare, but deserves to be better known." I have no certain information as to the origin of this plant, but in the "Gardeners' Year Book" of 1871 it is described under the name of *H. stricta*, being said to be from Australia, and Mr. Gower of Tooting thinks "it came from seeds of Müller's distribution." Perhaps some other readers of the Journal can give further particulars concerning its history. The name is sometimes spelled *H. Reedi* or *Reidi*.

Other but little known species are *H. grossulariaefolia*, of trailing habit, with leaves resembling those of the Gooseberry in form; *H. perfoliata*, with flowers like *H. dentata*, but distinguished by the base of the leaves surrounding the stems; *H. Cunninghami*, an elegant and distinct species, with linear leaves 2 to 3 inches long; and *H. pedunculata* or *corifolia*, which resembles *H. Rheedi* in general appearance but is more lax in growth. All these are well worth attention, but are difficult to obtain.—L. CASTLE.

#### APRIL SHOWERS.

AFTER a long continuance of dry weather, accompanied by east winds of more than usual keenness and severity, a most welcome

change to a warmer temperature and genial showers has been gradually setting in since the 9th inst. Up to the 11th, when the first heavy showers of rain fell, things look blacker and barer than I ever remember to have observed at the same date. Fruit trees are remarkably backward, Apricots showing bud and bloom very shyly and irregularly, Pears rather more forward comparatively and fuller.

As to Roses, many standards look in a precarious condition, and I fear by some accident my trees were pruned too early, so that the frosts had too much opportunity of injuring them. As yet most of my small collection of Teas look fairly, some even quite promising, specially Reine Marie Henriette, which has been in full leaf for a fortnight. It is only a small plant put in last autumn together with Climbing Devonensis, also healthy-looking, and trained to a south-west wall. Besides mulching, these plants were well screened by Yew boughs.

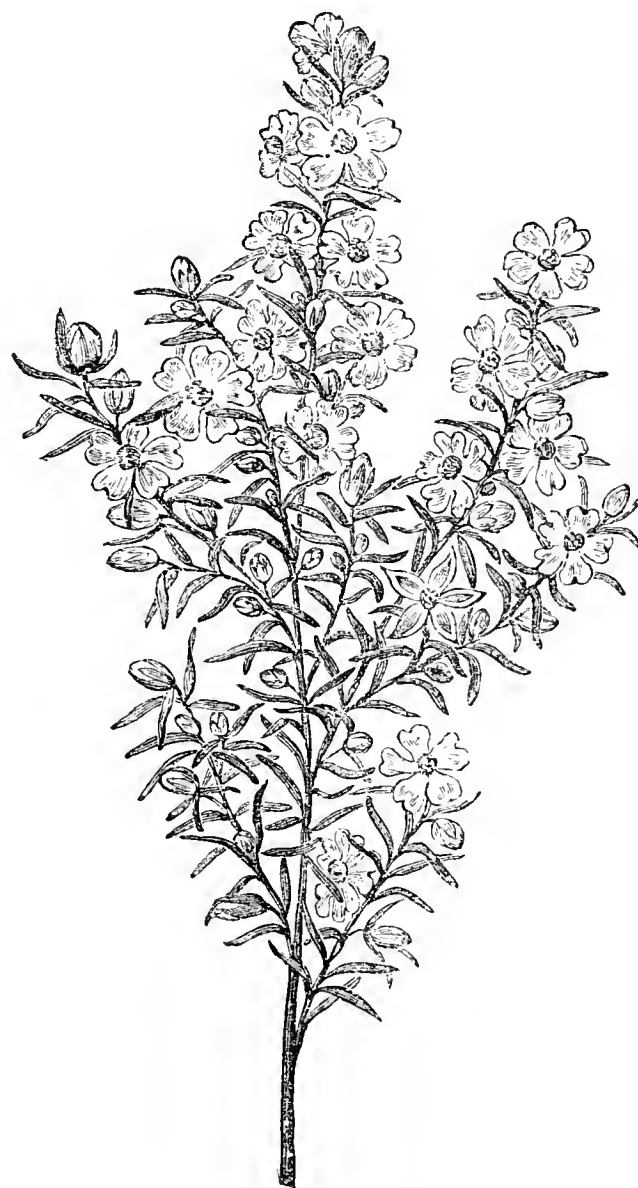


Fig. 74.—Hibbertia Rheedi.

Amongst other surviving Tea Roses are Rêve d'Or, Madame Falcot, Marie Van Houtte, Triomphe de Rennes, Madame Willermoz, Souvenir d'un Ami, Innocente Pirola, Cheshunt Hybrid. Dwarf Hybrid Perpetual Roses on the Manetti stock almost without exception look well hitherto. I experimented with a few of those, pegging them down last autumn. The earth would appear to be kinder than the air, the pegged-down shoots being markedly more forward and vigorous than the rest of the tree. Most of the dwarfs were pruned about the last days of March, those planted last autumn a few days later.—A. M. B., *Mid-Lincoln*.

A NEW AUSTRALIAN FRUIT.—An interesting journal from a prospecting gold-mining party has lately appeared in the *Queensland Courier*. The scene is on the head waters of the Daintree river, whose lower scrubs are so famous for the rich soil being taken up for Sugarcane. Among the slate and granite ranges of the upper Daintree this new sort of native fruit was discovered. Mr. Palmerston thus describes it—"There is a large fruit here which grows on a very tall tree. When green it is much the shape

of a large Apple; when ripe the skin is black, and the inside of a deep red, with three or four large seeds in it. This fruit is of a soft nature something like the Plum, and stains anything it comes in contact with yellow. The taste is the same as a Lemon, and from it, so pulpy is the fruit, a bucket of jam could be got in a few hours. It eats very nicely with sugar. We used a great deal of it, as we had no beef." What with an immense area of rich pastoral land, a coast rapidly being taken up for sugar and spices; mountains bearing gold, silver, and tin; seas with pearls and bêche de mer; and forests of edible fruit, North Queensland is determined to be noticed.

#### TALL VERSUS DWARF KIDNEY BEANS.

AS many of your readers will now be thinking of sowing their Kidney Bean seed, the present will be a good time to call attention to the merits of tall and dwarf varieties. As a rule tall or runner Beans are the greatest favourites, and they are the most grown; but I will not say they are the most useful in all cases, or indeed in the majority of instances, as I think many attempt to grow tall Beans when dwarf varieties would answer their purposes much better in every way. This would be particularly the case in small gardens, or in all gardens near towns where stakes are difficult to procure, and where from the frequent absence of these the runner Bean crop is not so satisfactory as it otherwise would be. Tall Beans are not such a sure crop as the dwarfs. In 1878-9 we almost failed to obtain as much from them as would pay for the seed, and certainly they did not pay for other labour. Their growth was rampant, but the pods were small and few; yet the dwarfs produced a full crop as usual. This was satisfactory, and argued well for their extended use, and there are other matters connected with them that will do the same.

Supposing a sowing of each kind were made on the same day, the dwarf Beans would be ready for use many days or perhaps weeks before the tall ones. Then, again, tall Beans occupy much space. Only one row can be had in a space from 4 to 6 feet wide, and for about as much as this on each side no useful crop can be raised under the shade of the Beans. According to this one row of tall Beans may be said to occupy a strip of nearly 12 feet wide, in which space six good rows of dwarfs might easily be grown, and would probably give more produce than one row of tall Beans. It must be remembered that dwarf Beans are not like dwarf Peas. The latter come all into bearing together, and little more than one good picking can be had from them; but dwarf Beans give a long succession, and blooms open and form pods long after the first have been gathered. Dwarf Beans require no stakes, and from their habit they are not half so liable to be injured by either frost or wind as the Runners. Osborns' Forcing is our favourite for first crop, Canadian Wonder is the next, Osborns' is the best early and the best late, and Canadian is good in midseason.

The first sowing may be made in a warm part of the garden and on the driest piece of soil from the middle to the end of April. From this sowings may be made every three weeks or so on until the first week in August. Rich soil suits them best, and the seed should not be more than 2 inches below the surface. Never allow the pods to become too old for use at the outset, as this will check after-production.—PRACTITIONER.



THE number of people registered as entering the ROYAL HORTICULTURAL SOCIETY'S GARDENS at South Kensington on Monday last (Bank Holiday) was 12,246—an increase of two thousand on the number admitted on the corresponding day of last year. The entrance fee was 2d. each person.

— "G. O. S." writes—"Have any of your readers ever noticed that the THORNS OF SOME ROSE TREES are more poisonous than others? I think that it is so, and that of all Maréchal Niel is the most poisonous. My gardener says that it has worse claws than a cat! and for myself I can say that when I have had one of its thorns in my finger the stinging pain has

lasted longer than from any other Rose thorn; indeed I now write suffering from a puncture, and not a deep one, from a Maréchal Niel thorn under my first finger nail five days ago."

— THE second portion of MR. DAY'S ORCHIDS was sold by Mr. J. C. Stevens at his auction-rooms, Covent Garden, on the 12th and 13th inst., the total amount realised being £1803 7s. 6d. The following were the prices obtained for the principal specimens—A fine plant and beautiful variety of *Cattleya exoniensis*, forty-eight guineas; an autumn-flowering variety of *Cattleya labiata*, twenty-two; a large specimen of *Cattleya Skinneri* with twenty-two growths, twenty; *Saccolabium præmorsum*, ten; *Lælia anceps rosea*, twenty-two guineas. A good specimen and fine variety of *Aerides affine*, twenty-seven guineas; *Angræcum Chailluanum*, fifteen guineas; *Phalænopsis intermedia*, sixty-two guineas; and a smaller plant, forty-four guineas. *Saccolabium guttatum*, very fine plant, twenty-two guineas; *Masdevallia ignea aurantiaca*, twenty guineas; *Lælia elegans* var. *Wolstenholmæ*, eighteen guineas; *Dendrobium Schröderi*, thirty-eight guineas; *Lælia purpurata*, thirty guineas; and *Cypripedium Spicerianum*, twenty-five guineas.

— UNDER the significant but by no means elegant title of "Dish Rag," a correspondent of the "American Floral Cabinet" refers to the Egyptian Loofah, or *LUFFA ÆGYPTIACA*, a member of the Cucumber family. The internal portion of the fruit is very fibrous, and when the pulp is removed a sponge-like substance remains, which is employed in America for bathing purposes. Specimens suitably dried and prepared may be seen in many London hairdressers' shops under the name of Egyptian Loofahs.

— MR. W. TAYLOR writes—"On the 31st March I cut 860 blooms averaging 3 inches across of BELLE ROSE CARNATION for decoration for a dinner party. A week before three hundred trusses of *Pelargonium Guillon Mangilli* were employed for the same purpose; the last-named were cut from plants in a small house in which Melons are growing. Let me remind your readers once more that this *Pelargonium* is of no use in a cool greenhouse for winter flowering, and that I do not recommend it for outdoors. It likes heat, and then it will produce three times as many flowers as any other *Pelargonium* I know. On some of the trusses there are three dozen fully expanded pips, which are very large. Single *Pelargoniums*, however pretty they may be, are comparatively valueless for cutting because they fall so quickly; double or semi-double ones never fall."

— WITH reference to the article and figure of the fine Everlasting *ASTELMA EXIMIUM* a short time since, I am glad to say that the plant was cultivated by the Messrs. Veitch a few years ago. It is to be hoped they still have it.—L.

— THE same writer remarks—"I know of no plant that produces a more brilliant display of flowers in winter than *TROPÆOLUM BALL OF FIRE*, recently noted in this Journal. It has bloomed continuously in the Cambridge Botanic Garden for the last nine months. During summer a few plants were grown in pots against a south wall, and when frost was expected were removed to a greenhouse. If trained on strings they are easily moved and placed in any required position."

— WRITING respecting *VALERIANA PHU* VAR. *AUREA* "R. J. L." observes—"Notice is now being taken of this plant, and I am surprised from the brilliancy of its effect that it has not become almost universal. It is a perfectly hardy herbaceous plant, and one of the earliest to unfold its leaves. It grows so far in almost any soil, and is easily increased by division. It is far brighter than Golden Feather, but its best effect is for spring gardening, as later on it becomes dull."

— A CORRESPONDENT sends the following note upon *STRELITZIA PARVIFOLIA*:—"This plant, while bearing an inflorescence equal to and almost the same as *S. reginæ*, is remarkable for its tiny leaf blade in comparison with that species. This is a very ornamental genus, and is interesting for the curious extremes of its leaf development. In *S. angusta* the leaf blades are several feet in length, while in *S. juncea*, if we remember rightly, there is no blade at all. The leaf blade of *S. parvifolia* is about  $1\frac{1}{2}$  inch long; in *S. ovata* it is much larger, and in *S. reginæ* it is of still greater size. *S. angusta* is least to be brought into comparison, being a very distinct species with tall stem, but the others are very nearly related. *S. parvifolia* is now attractive in the Cambridge Botanic Garden."

— OF late years the cultivation of LIBERIAN COFFEE (*COFFEA LIBERICA*) has been energetically pushed in English Coffee-growing colonies and possessions. This has been due to two causes:—First, the cultivation of Arabian Coffee (*Coffea arabica*) has been severely crippled in the New World by the "white fly," and in the Old by the "leaf disease" (*Hemileia vastatrix*). Secondly, Liberian Coffee being a more tropical plant, grows well at a zone of altitude below that which Arabian Coffee requires. The produce of the plantations of the new species is now coming into commerce. At present it does not find much favour apparently in England, but in America it is better appreciated. Recent sales at New York of Ceylon-grown Liberian Coffee have realised 93s. per cwt., or 12s. above the current quotation for middling plantation Coffee (Arabian) in the London market. This is a result of great importance for the West Indian Islands. Liberian Coffee has been found in Dominica to possess a comparative immunity from the attacks of the white fly, the ravages of which had all but completely extinguished the Coffee cultivation of the island. Not merely therefore can West Indian Coffee cultivation be revived with reasonable prospect of success, but there is the additional encouragement of a ready market easy of access in the United States.—(*Nature*.)

#### THE NATIONAL AURICULA SHOW (SOUTHERN SECTION).—APRIL 19TH.

ONCE again the great alpine tournament has been held, and the day could not have been much less keen than the progenitors of the flowers must often have experienced on the mountains of Switzerland, for a biting easterly wind prevailed, which was the more felt since it followed several days of genial weather. Those days have had a wonderful effect on vegetation generally, and have been undoubtedly of great benefit to the flowers exhibited at the Show under notice. Had there been no favourable break in the prolonged cold of March and early April it would have been well nigh impossible for northern growers to have exhibited on the 19th; and as it was they have only been able to do so by more forcing than the Auricula likes, and which weakens the flower stems and flowers, and deprives the colours of their gloss and freshness; and not only are the Auriculas that are exhibited impaired by too much forcing, but unfortunately those left behind, hundreds of cherished plants, are in a corresponding degree weakened. Those, therefore, who make these efforts and incur the risks in the public interest—for the fame of the chief contributors is established—deserve a large meed of public approbation. Unquestionably the southern growers had the advantage this year, but they were not allowed to have all the honours of the day, as will be seen by the awards. The Show was perhaps not quite so large as that of last year, but it was better. The plants were generally dwarfer, and fewer sticks were employed; and if all the flowers on the trusses were not fully expanded the majority of those that were open were very fine, and the freshness of youth pervaded the Show.

In the class for twelve distinct varieties the prizes were awarded in the same order as last year—namely, Rev. F. D. Horner, Kirkby Malzeard, Ripon, first; Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, second; and Mr. B. Simonite, Rough Bank, Sheffield, third. Mr. Horner's collection contained such nearly new and beautiful varieties as the exhibition selfs Ringdove and Heroine, which will bear his name to posterity; Simonite's Frank Simonite (very fine), Horner's Ajax, Walker's J. Simonite, &c., with some seedlings,

including Snowdrift (white-edged), which is referred to below Intrepid, and Erebus, a fine dark self. Mr. Douglas's plants were larger—indeed he grows Auriculas stronger than any other exhibitor, and thus, while he loses a little in the refinement of the flowers, does not lose many prizes, which after all is the real test of cultural skill. His plants and flowers were very fine, and included excellent examples of George Lightbody, Heap's Smiling Beauty, Colonel Champneys, Lancashire Hero, Campbell's Pizarro, Douglas's Silvia, Taylor's Glory, Douglas's Hilda, Read's Acme, and a seedling named Mabel, which obtained the premier prize as the best Auricula selected from the whole Exhibition. It closely resembles George Lightbody, was very fresh, bright, and well formed. It deserved its position. Conspicuous in Mr. Simonite's collection was his grand self Mrs. Dodwell, which ought to be grown by the dozen for conservatory decoration; a charming example of Ringdove, Booth's Freedom, Richard Dean, and Frank Simonite were also good, but the majority required another week at least to bring them into the cultivator's usual exhibition form. J. T. D. Llewelyn, Esq., Penllergare, had the fourth prize with small plants and large flowers of excellent colour. It is a little surprising how this exhibitor contrives to produce such fine flowers from plants so small.

In Class B, for six plants, dissimilar, the Rev. F. D. Horner was again placed first with six regular plants of Horner's Ajax, Lancashire Hero, Horner's Sapphire, Campbell's Pizarro, Horner's Phantom, and Simonite's Frank Simonite. Mr. Douglas was second, his notable plants being Simonite's Frank Simonite, Trail's Prince of Greens, Lancashire's Lancashire Hero, and Headly's George Lightbody; S. Barlow, Esq., Stakehill House, Castleton, Manchester, third, exhibiting Horner's Ringdove, Lee's C. R. Taylor, Simonite's Frank Simonite, Oliver's Lovely Ann, Campbell's Pizarro, and Sam Barlow in good condition. R. K. Penson, Esq., Denham House, Ludlow, was placed fourth, and J. T. D. Llewelyn, Esq., fifth with highly creditable examples.

Five competitors staged in Class C, for four plants, dissimilar. Mr. R. K. Penson secured the first prize with a fine and bright collection, both the paste and colours being very fresh and clear; a fine truss of Turner's Vulcan bearing eleven good pips was very conspicuous. His other varieties were True Briton, George Lightbody, and Col. Taylor. These plants were altogether excellent, and the exhibitor deserved the honour he won so well—we had almost said easily—which is no small achievement when we consider to whom the remaining prizes in the class went. Mr. Douglas was awarded the second prize with Turner's Chas. Perry, Headly's George Lightbody, Taylor's Glory, and Leigh's Col. Taylor. The trusses in this collection were bold and erect, but lacked that clearness and brilliancy of the first-prize collection. Mr. B. Simonite was a very good third. This collection contained a magnificent truss of Frank Simonite bearing eleven finely developed pips. S. Barlow, Esq., secured the fourth prize, and J. T. D. Llewelyn, Esq., the fifth. In the class for two plants there were nine contributors, Mr. Douglas being first with Heap's Smiling Beauty and Lancashire's Lancashire Hero; Mr. B. Simonite second with Frank Simonite and Brilliant; Rev. F. D. Horner third with Lancashire Hero and Horner's Ringdove; R. Gorton, Esq., The Woodlands, Golden Brook, Eccles, Manchester, fourth with Robert Trail and C. J. Perry; R. K. Penson, Esq., fifth with Kay's Topsy and Robert Trail; J. E. Hay, Esq., Newcastle-on-Tyne, sixth with a grey-edged seedling and Trail's Beauty.

In the class for a single plant of green-edged the Rev. F. D. Horner was first and eighth with Lancashire Hero. Mr. Penson second and fourth with Prince of Greens and Simonite's Talisman. Mr. S. Barlow was third, Mr. Simonite fifth, and Mr. Douglas sixth and seventh. For grey edges Mr. Penson was first and eighth with George Lightbody and Confidence; while Mr. Douglas secured the other six prizes—viz., second, third, fourth, fifth, sixth, and seventh respectively, with Headly's George Lightbody, Kay's Alex. Meiklejohn, Read's Dr. Horner, and Headly's E. A. Brown. This was a very fine class indeed. For white edges Mr. Douglas was awarded the first, second, third, sixth, seventh, and eighth. With Heap's Smiling Beauty he secured the first, second, sixth, and seventh prizes; Trail's Beauty gained him the third, and Smith's Ann Smith the eighth. Mr. B. Simonite was here placed fourth with Trail's Beauty, and Mr. Penson fifth with True Briton.

In the self class R. Gorton, Esq., secured the first, third, and fourth prizes with Blackbird; the fifth with a seedling. Mr. Penson received the second prize with Lord Lorne; Mr. Bolton, 84, Wilderpool Road, Warrington, was sixth with the same variety; Mr. B. Simonite seventh with Pizarro; and the Rev. F. D. Horner eighth with Horner's Daphne.

In the large class for fifty plants, not less than twenty varieties, to include Alpines, Messrs. Douglas, Turner, and Llewelyn were placed first, second, and third respectively. The collection to which the post of honour was awarded (Mr. Douglas's) was remarkable for their vigour as well as their substance of bloom. Noticeable among other varieties were Spalding's Metropolitan, Douglas's Silvia, Kay's Trophy, Kay's Alexander Meiklejohn, Taylor's Glory, Hepworth's Smiling Beauty, Turner's Charles Perry, Headly's Alderman Wisbey, Trail's Beauty, fine; Lady Sophia Dumaresque, Cunningham's John Waterson, Smith's Lycurgus, as well as some good seedlings. The Slough second-prize plants were beautifully fresh and bright, but fully a week behind the first-prize collection, but they gained in sturdiness what they lacked in size. A dark self, Sims' Vulcan, was



particularly conspicuous; Turner's Charles Perry was very pleasing and prominent; a splendid truss of Simonite's Frank Simonite was magnificent; Turner's Col. Champneys, Clipper, and a few good seedlings were all beautiful. Mr. Llewelyn had Frank Simonite, George Lightbody, and a few others very good, but the generality of the plant were smaller than those of the other competitors.

In the class for twelve Alpine Auriculas, dissimilar, Mr. Turner was placed first with a very fine collection. The whole of the plants with the exception of Gorton's Diadem were of his own raising, including four seedlings unnamed, also Mariner, Unique, Mrs. Llewelyn, Mrs. Thomson, Evening Star, Rembrandt, and Mrs. Dodwell. Mr. Llewelyn was a very good second, and exhibited a very pleasing collection consisting of Dolly Varden, Ovid, Mrs. Meiklejohn, Echo, James Fowle, Percival, Gwendoline, Mrs. Llewelyn, Evening Star, Distinction, Unique, and one or two seedlings. Mr. Douglas was awarded the third prize for a fresh and bright collection. For six dissimilar Alpines Mr. Douglas was deservedly awarded the first prize; his collection was remarkably clean and fresh, with the colours well blended. Turner's George Lightbody, Mrs. Llewelyn, and Queen Victoria, with two or three seedlings of Mr. Douglas's raising, were very noticeable. Mr. Turner obtained the second prize; Marginata and Sensation were particularly fine. Mr. E. Adams, Swalwell, Newcastle-on-Tyne, was placed third; Mr. Llewelyn fourth, and Mr. Barlow fifth, all exhibiting well. For a single specimen Alpine, gold centre, Mr. Douglas was first, third, fourth, fifth, and sixth. First with Gorton's Diadem, third with Col. Scott, fourth with President, fifth with a seedling, and sixth with Gorton's Diadem. Mr. Turner obtained second prize with a seedling. For white or cream-centre Alpines Mr. Turner was first, second, and fourth; Mr. E. Adams third, Mr. Douglas fifth, and the Rev. E. L. Fellowes sixth. Twelve Fancy Auriculas, Mr. S. Barlow secured the first prize and Mr. W. Bolton the second, both exhibiting seedlings which were more curious than beautiful.

Only two certificates were awarded for Auriculas—namely, to Mr. Douglas for *Mabel*, a grey edge which may occasionally come green. It is a very fine flower, with smooth circular paste and a thin line of body colour. It bears somewhat a close resemblance to George Lightbody, but differs from that variety, and especially in the foliage. Also for an unnamed seedling exhibited by Mr. Horner, the parentage of which is George Lightbody and Smiling Beauty. Special prizes were awarded for Auriculas, but as all the cards were not affixed when we left the Exhibition we can only name the following:—To Mr. Horner for a fine dark self, Erebus (first), Intrepid (second), and Snowdrift, white-edged (first); and to Mr. Douglas (first) for *Mabel*. The last-named exhibitor and Mr. Turner has also prizes for some Alpines.

**POLYANTHUSES.**—In the class for six gold-laced varieties S. Barlow, Esq., Stakehill House, Castleton, near Manchester, was first, all the plants being his own seedlings. To *Criterion* a first-class certificate was awarded. It is a circular clearly defined flower, rich in colour and lacing. It was also awarded a first prize as a seedling. *John Bright* had a first-class certificate, and a second prize as a seedling. It is a large and very bright flower, but a little irregular in form. *Firefly*, a sparkling flower with a red ground, was awarded a first prize as a seedling. The others in the group were Sunrise and an unnamed seedling. Mr. Douglas was placed second with the best grown plants that have perhaps ever been exhibited at the Society's southern shows. They included Lancer, Cheshire Favourite, Exile, George IV., President, and Rev. F. D. Horner. Mr. W. Bolton secured the third prize. For three plants the prizes went in the following order to Messrs. Douglas, Bolton, and Barlow. For one plant Mr. Douglas was first with Exile, Mr. Barlow second with George IV., Mr. Cauldwell third with George Buck, Mr. Llewelyn fourth with Lancashire Hero, Mr. Barlow fifth with Sunrise and sixth with Lancashire Hero.

In the class for twelve Fancy Polyanthuses Mr. R. Dean, Ealing, was first, the plants being vigorously grown and in good varied colours. Mr. Hooper, Bath, was an excellent second with dwarf plants and good varieties; Mr. Douglas being third with larger but rather less sturdy examples. Messrs. Dean and Hooper were the only exhibitors in the class for twelve Primroses, the prizes being awarded in the order named. The plants were admirably grown and flowered, and their varied colours from pure white to rich crimson had an excellent effect. For twelve hardy Primulas, distinct, Mr. Douglas was placed first with *P. rosea*, a fine plant; *P. japonica*, *P. intermedia*, *P. Munroi*, *P. marginata*, *P. sikkimensis*, and several forms of *P. amœna*. Mr. S. Barlow was second, his collection including the true Bardsfield Oxlip; Mr. Llewelyn was a very close third. *P. viscosa* was extremely fine; *P. cashmeriana* and *P. verticillata* also showed to great advantage.

**MISCELLANEOUS EXHIBITS.**—These contributed greatly to the effect of the Show. Mr. Turner staged about 100 Auriculas, chiefly Alpines, which were very much admired. Mr. Cannell had a large collection of Auriculas, Alpines predominating, many of which were very singular. He also staged Polyanthuses and Primroses, and a good plant of the fine double *Tropæolum Hermine* Grasshoff. Mr. G. F. Wilson, F.R.S., staged a small group of Primulas, including the rich Bunch Primrose Herman Wilson. Mr. Dean exhibited a group of hardy flowers, amongst which Polyanthus Meteor was extremely telling, the two colours, crimson and gold, being very rich. Messrs. Lane & Son had a very fine group of Rhododendrons in pots admirably flowered, also Roses in similarly good condition. Messrs. Osborn

and Sons a mixed collection of decorative plants, to which Anthuriums and Imantophyllums, good varieties of both, contributed brightness. Mr. Charles Turner staged a collection of Azaleas, half-standard plants in 6 and 7-inch pots, the heads 18 inches in diameter, the varieties and flowers being of the best quality, and the whole highly effective. Messrs. Veitch had a choice group; very fine was *Dendrobium aggregatum majus*, and *Boronia megastigma* imparted perfume to the group. Mr. B. S. Williams contributed a large and excellent group of stove and greenhouse plants; Mr. Aldous, decorative plants; Mr. Barr, Narcissuses, Grape Hyacinths, &c.; Mr. Hooper, Bath, very fine Pansies; and a group of remarkably dwarf, well grown and flowered Cinerarias was sent from the Society's garden at Chiswick.

### NO FLOWERS TO CUT.

"WE have neither a flower to cut, a plant fit to bring in the house, nor a single expanded bloom out of doors, yet we keep a gardener with nothing else to do but grow these things for us. In the cottage gardens are Snowdrops and Crocuses in full bloom, Christmas Roses just going out, and Daffodils and Poet's Narcissus promising an abundant succession; but our poor garden, where we spend at least £100 a year, has at present neither a flower nor the immediate promise of one. True, we have had some Primulas, but they are over, and the Cyclamens, of which I am very fond, did not succeed. John says they had worms at the roots."

Something like this was the lament of the proprietress of a moderate sized garden during the early part of last month, with whom I could but sympathise, and express a wish to find out if possible where the fault was. A hasty look through the garden soon convinced me that the fault was not altogether on John's side. He may have faults, poor man, like other mortals, but laziness certainly is not one of them. I found the vegetable garden in excellent condition for such a season, the lawn and walks in faultless trim, and a mixed greenhouse and vinery full from floor to roof of plants as healthy as we could wish to see, with the single exception of the Cyclamens, the treatment of which apparently had not progressed as in most other places during the last dozen years. But, of course, this was a very small affair, though an unfortunate one, as the proprietress was fond of Cyclamens. However, if I had only one failure in a season I should think myself very fortunate. What, then, was the fundamental error in management? It was simply this—John was concentrating all his energies in the floral department to produce a grand display in the flower beds in summer. The greenhouse contained thousands of bedding Pelargoniums, a score or two of beautiful healthy Fuchsias, three or four Azaleas not yet showing flower, and the usual assortment of odds and ends which every amateur picks up and places between his other plants, leaving them waiting there for a better day which never comes. John may be responsible for this state of things, inasmuch as his "hobbies" may be "bedding-out" and Fuchsias, but certainly the proprietor has an easy remedy in his hands. His beautiful piece of sloping lawn is at present cut-up by several fantastic-shaped beds, and as they, at least for half the year, show only the black bare earth, they would be much better turfed over. Thus far the lady of the house would go with me, but she would like the turf taken away later and the bedding plants placed there. Well, I should like to persuade her to do without the beds near the middle of the beautiful green sward for just one summer, and then I really believe she would have no desire to have them again.

I have nothing whatever to say against masses of colour in their proper places, and I would on no account check John's enthusiasm for Fuchsia growing; but I could say very much against the system which must have a flower bed in every neat piece of lawn. But supposing the bedding arrangement to be all that is right in point of taste so long as it lasts in good condition, is it worth the ten months' labour and self-denial which it costs to produce the two months' display? Remember, this display is at a time when Nature is doing her very best to clothe all around with beauty, and when the air is such that all but confirmed invalids can spend a portion of their time in enjoying the rich feast she provides. Remember, too, that but for the excessive display of scarlet and yellow in summer you might have had Primulas, Tea Roses, Spiræas, Trumpet Lilies, Lily of the Valley, and Violets indoors while the cold east winds were blowing in spring; and you might have looked through your window and feasted your eyes on thousands of Snowdrops, Crocuses, and waving Daffodils; while at intervals, even during winter, a small opening of the window would have admitted air laden with the perfume of a thousand Violets.

Do not expect John to produce all these in addition to what he does now, he is already overworked. It is the last straw which

breaks the camel's back, and if I am the cause of removing even a few straws this letter will do a little good.—WM. TAYLOR.

#### DENDROBIUM WARDIANUM.

THIS handsome Orchid is so well known that it scarcely needs description, but rarely is such a remarkably fine variety seen as that of which a flower is represented its natural size in fig. 75. The plant from which this was taken I recently noticed in one of the houses under the charge of Mr. Scutt, gardener to A. W. Gadesden, Esq., Ewell Castle, Surrey, the specimen having growths about a yard long, bearing the enormous flowers two or three together, each as large as that shown in the woodcut. The plant was in a basket suspended from the roof of the house over the path, and at once attracted attention, although other richly coloured and imposing flowers were uncommonly numerous in the same structure. The flower selected was 5 inches in diameter

from tip to tip of the petals, each of which was  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inch in breadth. The sepals and petals were of great substance, white tipped with bright crimson; the lip being of a clear yellow hue with two intensely rich crimson blotches at the base. It is doubtful if this superb variety has ever been surpassed in the size of the flower and richness of the colouring.—L.

#### BOUVARDIAS.

BOUVARDIAS may be grown successfully by amateurs if an ordinary amount of attention is paid to them. They are easier to grow than the majority of plants that do not produce half so many choice flowers in return. Their propagation is effected by means of cuttings, which should be inserted as early in the spring as possible. The points of the young shoots about 3 inches in length root readily if inserted in 5-inch pots and placed in the propagating frame or under bellglasses and plunged in brisk

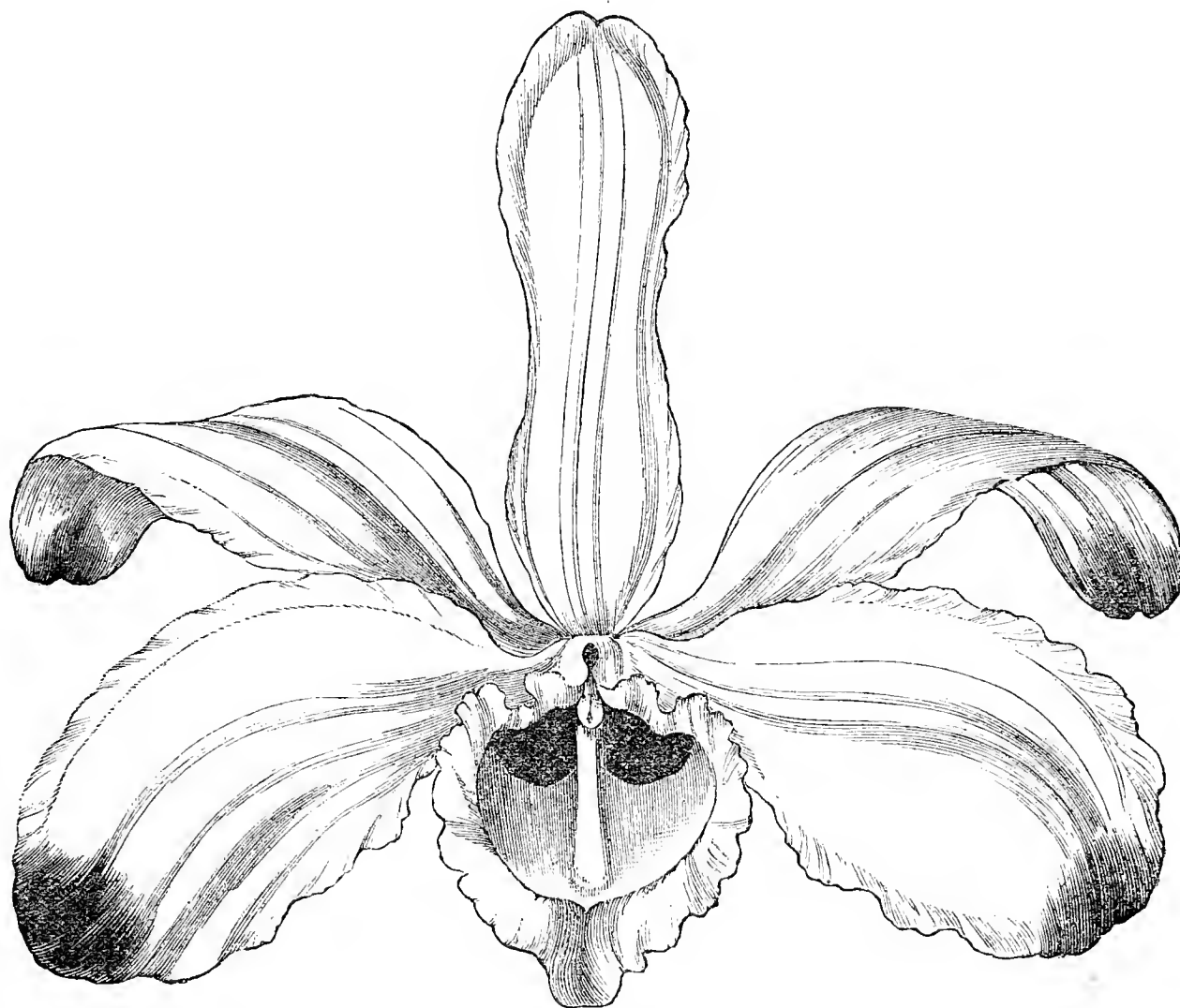


Fig. 75.—DENDROBIUM WARDIANUM.

bottom heat. When rooted the young plants must not be left in the cutting pots until the roots are matted together. As soon as the cuttings are sufficiently rooted they should be at once placed in 2-inch pots well drained. If slight bottom heat can be afforded for a time the young plants will make much better progress, and at the same time increased ventilation will be necessary to maintain a sturdy growth. The shoots require pinching to form bushy plants and lay a good foundation for well-developed specimens. The points of the young plants must be taken out after the first potting, as if allowed to grow unstopped much time is wasted, and at the end of the season the plants would have to be cut back. When they have filled their pots with roots they should be transferred to 5 or 6-inch pots, and repotting afterwards should be attended to as they require it. The compost most suitable is rich fibry loam three parts to one part of leaf soil and cow dung, with plenty of coarse sand to keep the whole porous.

Watering should be done carefully, especially just after the plants are potted, and in all stages of their growth careful applications of water are necessary. After plants have attained the desired size and filled the pots with roots liquid manure may be liberally supplied. As the season advances bottom heat can be dispensed with, and the plants grown under the influence of more air, gradually hardening them ready for the time when the exter-

nal temperature will permit their being placed in cold frames, which will be about the beginning of June. If the plants are properly hardened previous to their removal to cold frames the lights can be removed early in August. It is advisable to keep the plants in pits where they can be protected in case of heavy rains. When the nights become cold the Bouvardias must be placed in a temperature of from  $55^{\circ}$  to  $60^{\circ}$ , where they will continue to bloom for months, and plants that have attained a fair size will not fail to produce their beautiful flowers over a period of six months. After flowering a rest will be required, which can be given by keeping them a little drier and cooler for a time. They can then be pruned, turned out of their pots, partially reduced, and repotted in the compost recommended above. They should have gentle warmth afforded them to start into growth, similar to what would be given to Fuchsias. A vinery just started is a capital place for them. The following are six excellent varieties:—Elegans, Hogarth, Queen of the Roses, Vreclandii, Bridal Wreath, and Maiden's Blush.—WILLIAM BLOMLEY (*Abridged from a Paper read before the Members of the Liverpool Horticultural Association*).

CHRYSANTHEMUMS IN POTS.—The large pots I employed for Chrysanthemums last year had four plants in each; if this was

not mentioned in the article to which Mr. Bardney refers it was a slip on my part. I had none better than these plants in large pots last season, and they certainly require less labour in the supply of watering than plants grown in smaller pots.—R. P. BROTHERSTON.



#### KITCHEN GARDEN.

No time should be lost in planting out Cauliflowers wintered in frames, also those raised and forwarded in heat, as well as early Cabbage, Brussels Sprouts, Lettuces, and Peas whenever the weather is favourable. If a south border is at liberty sow Dwarf Kidney or French Beans 4 inches asunder in rows about 2 feet apart; Osborn's Forcing, Negro, and Canadian Wonder are suitable varieties. Attend to the earthing-up and placing sticks to Peas as they advance in growth, and dust the plants whilst damp with soot, quicklime, or dry wood ashes. In order to obtain a good supply of Peas in August, sow now liberally such kinds as Criterion, Huntingdonian, Telephone, Emperor of the Marrows, and Ne Plus Ultra, which are all tall varieties; among those of medium height are Dr. Maclean, Marvel, Veitch's Perfection, and Maclean's Best of All. The ground for late summer Peas can hardly be too rich and deep, affording them plenty of room. Make another sowing of Longpod and Broad Windsor Beans. Complete the sowing of Carrots and other root crops, preparing the ground for Beet, also Chicory, which may be sown at the end of this or beginning of next month. Lettuces are coming in at last, Stanstead Park taking the lead. Attend to the Cos varieties, and tie up the earliest to succeed the Cabbage varieties. Keep up successional supplies by sowing moderate quantities of seed occasionally; Malta and Suttons' Gem among Cabbage sorts, with Alexandra Cos, are good for summer use. Complete as expeditiously as possible the planting of Potatoes. Plantations of herbs should at once be seen to, inserting cuttings of Sage and Thyme. Divide the roots of Marjoram and Tarragon, and plant in rows about 18 inches apart. Sow seeds of other herbs not increased by division, such as Sweet Marjoram, Basil, Savory, and Chervil, the last being sown about three times a year to keep up a supply in the present month, June, and August. Herbs are benefited by a change of soil, and should have a moderately warm situation; they succeed well on an east border. The seedling Brassicas require care to protect them from small birds and slugs. A little dry soot scattered over the beds will, from its bitter taste, check the birds, but a little quicklime is preferable for slugs. Ply the hoe when the weather is favourable between the rows and about growing plants, and as soon as the seedlings of root crops appear run the hoe between the drills.

#### FRUIT HOUSES.

*Vines.*—The time for planting young Vines has arrived, and where new borders have to be made it should be seen to at once, choosing dry weather for the operation. Drain thoroughly, and have the materials for the border well incorporated. Loam taken from a pasture about 3 or 4 inches thick, chopped up in squares of about 6 inches, adding about a tenth of old mortar rubbish and a bushel of crushed bones to a cartload of loam, with a similar quantity of charcoal, will form a suitable and durable border. Let the depth be 30 inches deep and the width 6 feet to start with. The material should be placed together rather firmly. The Vines for planting are in 8 or 10-inch pots, the canes having been cut back in December and have been kept in a cool house. The buds have started and are a couple of inches long, which is a suitable length. Turn the Vines out of the pots, disentangle the roots, removing every particle of soil, place the Vines in position, spread out the roots evenly, and cover them with about 4 inches depth of soil, working it amongst the roots, afterwards giving a good supply of water at 90°, and mulch with short dung. Syringe two or three times a day according to the weather, and do not attempt to force the Vines into growth, but maintain a temperature of about 55° artificially, and ventilate freely above 65°.

Young Vines planted last spring are now growing, and when the shoots are about half an inch long a little fire heat on cold nights will be beneficial. Rub off all buds but one at each break as soon as the best can be distinguished, and crop lightly; a couple of bunches to prove the kinds will be sufficient. If there are any supernumeraries they may be fruited heavily. There must not be any deficiency of moisture in the border. Thin the bunches and berries in succession houses, bearing in mind that so long as those remain on the Vines they are appropriating the nutriment that would otherwise go to the improvement of the permanent crop. Late houses started in March are making rapid progress; attend to disbudding and tying-out as necessary, closing early, and dispense with fire heat as much as possible. Maintain plenty of atmospheric moisture, and ventilate freely when the weather permits. In the early houses red spider is appearing, and should be combated by painting the pipes with sulphur, but not too thickly. Water the borders where the Grapes are colouring with liquid manure, and mulch the surface of the border with partially decayed manure. A moderate amount of atmospheric moisture should still be maintained, but as the colouring becomes more advanced gradually lessen the supply and allow a free circulation of dry warm air. A full crop of early Grapes is a serious strain on the Vines, and in striving to ripen them in a short time perfection in colour is not always attained, which defect may often be avoided by a moderately low night temperature and a constant supply of dry warm air. Where Grapes are fully ripe a reduction of temperature may take place, keeping up a little moisture in the air.

*Melons.*—The first batch of plants have their fruits swelling freely, necessitating copious supplies of water at the roots, maintaining a moist but at the same time well ventilated atmosphere. Keep the laterals somewhat closely stopped, and thin-out where likely to interfere with the principal foliage. Afford the needful support of the fruit. Later plants are showing fruit, and unless in sufficient quantity for a crop remove the first until five or six pistillate blossoms of a simultaneous growth on each plant are secured. Maintain a higher temperature during the setting period, 80° to 90° from sun heat, and 70° at night, affording water only to prevent flagging, and withhold the syringe and all atmospheric moisture for a few days, ventilating rather freely, and look over the blossoms for fertilising as fast as they appear, it being preferably performed after a few hours' bright sun. Attend to former instructions as to earthing up. In pits and frames maintain a bottom heat of 80° to 85°, and a top heat of 65° to 75° with an advance of 10° to 15° from sun heat. Ventilate a little at 75°, and maintain 80° to 85° during the day, closing for the day at about 3 P.M., but not so early if an advance is likely to be made above 90°. Observe the conditions indicated above when the fruit is setting, and after the fruits are set and swelling let them be placed on pieces of slate, afterwards raising them above the foliage on an inverted flower pot. Continue to make up beds of prepared materials, getting out the plants when the bottom heat is not in excess of 90°. Pot off seedlings, and sow seed for raising plants for successional crops.

*Cucumbers.*—To insure a healthy and fruitful condition of the plants do not omit pruning the plants regularly about twice a week, or the young growths will so crowd each other as to render the operation tedious and injurious, as there is danger of removing that which it is desirable to retain, and of rubbing off the young fruit. Moisture will need to be abundant in the atmosphere and at the roots, or red spider and thrips will soon appear. Fumigation will destroy thrips, but it must be done carefully and repeatedly. Against red spider thinly coat the pipes with sulphur, and fill the evaporation troughs with guano water, and damping the house with the latter at closing. The foliage must not be allowed to flag severely, otherwise shade as little as possible at present. In pits and frames an increase of moisture will be necessary, damping the foliage gently through a fine rose early on fine warm afternoons, closing at the same time, and with the temperature advanced to 85°, admit a little air afterwards for about half an hour. Attend to stopping and thinning the shoots where likely to be too crowded, and maintain a good bottom heat by means of linings of fermenting materials, and afterwards be careful to allow the escape of rank steam, especially



when the sun is powerful. Earth-up the roots a little from time to time, and afford efficient protection over the lights at night. Ridge varieties should now be sown.

*Pines*.—Suckers started at the beginning of March, and plants disrooted at that time and subjected to similar treatment, will be well rooted, and should be transferred to the large pots before they become root-bound. See that the soil is thoroughly moist before potting, and if necessary give a thorough supply. Autumn suckers kept through the winter in pots it is not intended to fruit them in should also be attended to in potting, and if to fruit early in autumn 10-inch pots are large enough for Jamaicas and Queens, and 11 or 12-inch for the most vigorous-growing kinds. A temperature of about 95° at the base of the pots is suitable for newly-potted plants, but after the roots reach the sides of the pots 90° should not be exceeded, as there is danger above that of injuring the roots, especially fruiting plants with roots in an active state at the sides of the pots. Keep the atmosphere about fruiting plants well charged with moisture during the time the house is closed, employing no more fire heat than is necessary to maintain 70° at night, and 5° more in mild weather. Commence ventilating slightly at 80°, more freely at 85°, and liberally at 90°; close with sun heat at 85°, and syringe the plants lightly except those in flower. Water will be required about once a week at this season. Where scattered fruits are ripening and flavour is required, such on the plants should be removed to a house where they can have more air, a vinery where the Grapes are ripe being suitable.

#### FLOWER GARDEN.

Herbaceous plants are among the first to cheer us with their flowers, and are particularly interesting during the spring and early summer months. Complete the dividing and re-arrangement of these plants as may be necessary, and before replanting work-in some fresh soil or decayed manure. *Pyrethrums* have showy flowers, and come in at a time when showy flowers are scarce, and should be grown where cut flowers are in request. There are now some really fine double forms, of which the following are good:—Madame Munier, rosy blush; Marquis of Bute, crimson; Mont Blanc, white; Sturbide, purplish carmine; Captain Nares, crimson; Duchess of Edinburgh, mauve suffused rose; Galopin, deep crimson; J. N. Tweedy, crimson tipped white; Madame Billiard, flesh white; Panorama, white shaded pink; Rev. J. Dix, rosy carmine; Gustave Heitz, rosy pink; and Lady Blanche, white suffused pink. They do well in ordinary garden soil, their Pæony-Aster-like flowers being very effective. *Herbaceous Pæonies* also are fine early summer-flowering plants. Some of the finest are Madame Calot, white tinted rose; albiflora chinensis plena, white; albiflora Whitleyi, white; Marie Lemoine, rosy blush, creamy centre; Docteur Bretonneau, rose, centre pink; atro-sanguinea, crimson; Clarisse, rosy pink, white centre; Etendard du Grand Homme, rosy purple; Edmond Lebon, rose; Prince Imperial, rose, centre white and yellow; and tenuifolia plena, blood red, beautiful. In rich rather moist soil they luxuriate, and once planted take care of themselves, and in flower have an imposing appearance. *German Irises* are fine border plants, doing well in almost any soil and place, and they produce their fine variously coloured flowers at an acceptable time. Some of the finest are Samson, yellow and crimson; Madame Sontag, lavender, yellow centre, lower petal blue feathered white; flavescens, lemon; pallida, lavender; Rolandiana, reddish purple, blotched white; atro-purpurea, bluish purple; Donna Maria, white, suffused with lavender; Bridesmaid, white, veined purple; Raphael, nankeen and purple; Lucrece, sulphur, lower petals lavender; and versicolor, violet and white. Then there are the *summer-flowering Chrysanthemums* that begin sometimes flowering in June and continue for months, being both useful and decorative: and of those Album plenum, white; Golden Button, yellow; Delphine Caboché, purplish rose; Frederic Pelé, red; Adrastus, rose; Cassy, light rose; and Andromeda, yellow, are good varieties. *Delphiniums* also are fine for cutting and have great decorative value, especially the double forms, as Pompon Brilliant, Keteleeri, grandiflorum plenum, Amede Hans, Beatsoni, and Madame Richalet; and of singles nudicaule, Belladonna, alopecuroides, Madame Lelandais, Wheeleri, and Cashmerianum.

*Phloxes* afford very handsome flowers and make an effective dis-

play. Both the early-flowering section, as *P. suffruticosa*, and late-flowering, as *P. decussata*, should be grown. Of the early-flowering the following are fine—The Queen, white; Clipper, white shaded lilac; Miss Robertson, white; Morello, rosy crimson; Lady Napier, white and fragrant; William Blair, rosy purple, crimson eye; Union, deep rose; E. L. Lewan, mauve; A. M. Kinnon, rosy purple, crimson eye; Duchess of Athol, white, rosy crimson eye; Forward, white, striped and clouded rose; and Purple Emperor. Of the late-flowering section Miss Macrae, white, purplish crimson eye; Madame la Comtesse de Turenne, white, lilac centre; Madame Marie Saison, white, shaded red; Mons. Malet, lilac, white centre; Mrs. Austin, white, crimson eye; Ball of Fire, red; Mons. de la Devanschuff, rose, purple centre; Mrs. Balfour, crimson; Lothair, scarlet, shaded purplish violet; Madame Henderson, rose; Souvenir de Berryer, rosy salmon; and Jessie Laird, white, violet crimson eye. *Potentillas* are not so often seen as they deserve to be. Some of the best are Velours Pourpre, purple; Louis Van Houtte, crimson; Alfred Salter, scarlet and orange; Eldorado, purple, edged yellow; purpurea plena, crimson purple; Toussand, L'Ouverture, bright purple; La Vesuve, red, edged yellow; Cameleon, purple, striped yellow; Chromatella, yellow; California, golden yellow; Panorama, yellow and light purple; Hamlet, crimson; and Mars, maroon. Pentstemons have been much improved of late years; and though requiring the protection of a frame in winter make a fine display in the borders, and are useful in affording a supply of flowers.

#### PLANT HOUSES.

*Orchids*.—A number of the East Indian species are now growing, and a temperature of 70° at night, falling 5° on cold nights, will be necessary, and 80° by day. Ventilate from 75° more or less on fine days from about 9 A.M. to 3.30 P.M. Shading is also necessary, and of such description as to exclude the fierce rays of the sun. Roller blinds are the best, as permanent shading produces a weakly growth in the plants. Early in the morning and again on fine afternoons syringe the plants, but avoid wetting the flowers, especially of Phalaenopsids. Syringe plants on blocks two or three times a day, and keep the surface of the pots damped. Dendrobiums require more water at the roots, but it must be carefully afforded or the roots will perish, especially in the case of overpotted plants. Such kinds as *D. Cambridgeanum*, *D. Devonianum*, *D. Parishii*, *D. Wardianum*, and many others succeed best in baskets suspended from the roof; but free growers, such as *D. densiflorum* and *D. Farmeri*, are best in pots. Cattleyas in growth must have plenty of moisture, separating them from those at rest. *C. gigas* and *C. Dowiana* should have a day temperature of 60° to 70°, never less than 55°. Continue to top-dress and repot any plants making fresh growth. Let *C. labiata* and *Lælia elegans* have the warmest part of the Cattleya house, affording good drainage and the best fibrous peat. Repot Anguloas and Lycastes, employing a mixture of equal parts peat, sphagnum, and charcoal the size of hazel nuts. They require plenty of water at the roots and must have good drainage. Burlingtonias may be grown in deep baskets, with large lumps of charcoal and sphagnum, and suspended in the East India house, affording plenty of moisture. Keep Barkerias cool and damp, as a dry atmosphere is injurious; syringe two or three times a day. Cypripediums must have plenty of water, or the plants and flowers will suffer, particularly *C. caudatum*. *Coelogyne cristata* starting into growth should be syringed frequently, and when fresh roots are formed supply water liberally. Shade Miltonias, and sponge the leaves to remove scale. Fumigate frequently to destroy thrips.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

##### GREENHOUSES.

GREENHOUSES and conservatories are now very gay, but the easterly winds accompanied with scorching sunshine has shortened the duration of many flowers considerably, and has encouraged the rapid spread of insect pests, notably green fly. Fumigation with tobacco is perhaps the most generally effective remedy, but this proves injurious to the expanded blooms of Azaleas, Deutzias, Cytisuses, and Pelargoniums, and these should be either transferred to a pit or other house, or be placed on the floor of the house and screened with mats. The house should be fumigated in the evening, taking

care that the plants have their foliage dry, repeating the operation the following morning or evening; afterwards the plants should be well syringed. Some of the advertised insecticides are easily applied, effective, and do not injure the foliage when the vendors' instructions are carefully followed. After dipping plants they should be placed on their sides and freely syringed with clear water.

*Cinerarias*.—Those now expanding their blooms should be assisted with occasional supplies of weak liquid manure. If seed is to be saved at once remove inferior varieties or the strain will deteriorate. As a rule it is best to buy seed of good advertised strains. If a few early plants are wanted sow a pinch of seed at once; employ a well-drained pan with fine sandy soil, render the surface level and tolerably firm, watering this an hour previous to sowing, pressing in the seed, and very lightly covering with sand. The pan should be covered with glass, placed on a greenhouse shelf, and carefully shaded. If the surface is found to be dry at any time water through a very fine-rose pot, or partially submerge them in a bucket of water.

*Chinese Primulas*.—Part of the seed of these may now be sown. The remarks upon sowing *Cinerarias* are applicable to these, with this important difference—the pans must be plunged or stood in heat, nothing being more suitable than a Cucumber frame. If pots are substituted for pans at any time they should always be at least half filled with drainage. *Primulas* being saved for seed should be placed on a sunny shelf and watered when required.

*Fuchsias*.—Cuttings of these strike readily enough in a frame over a gentle hotbed. Do not crowd the cuttings, and when struck pinch them back, potting off when breaking afresh. Old plants that have been cut back and are now starting into growth should have the greater part of the old soil shaken from the roots, shortening these and returning the plants to as small pots as can consistently be used, taking care to shake down the soil well among the roots; any light loamy sandy soil will suit them. The plants will start more freely if a little heat can be given.

*Balsams*.—Sow seeds of these thinly in pots or pans, and place them on a greenhouse shelf. Keep the soil moist but avoid saturating it. The seed would germinate much more rapidly in heat, but sturdiness should be aimed at, which is best attained by raising the plants in a cool house.

*Chrysanthemums*.—If bushy plants of these are required pinch the shoots back to the fourth joint, potting off recently struck cuttings, giving a shift to those already singly in pots when they are pushing afresh. Untrained standards give the finest blooms, and this plan admits of a greater number of plants being grown on a given space. For these select and pot on the sturdiest plants, and do not pinch back. A cold frame is most suitable for *Chrysanthemums* at this time of year, and they may yet be propagated.

## THE BEE-KEEPER.

### INTRODUCING AN ALIEN QUEEN—PREVENTION OF SWARMING.

I. I INTEND to procure a Ligurian queen, but seeing there is so much risk in enthroning her, how would it do to make a swarm for her, and so give them all strange quarters? I could easily do this, as I have a straw skep I intend to keep for breeding from which is very strong of bees. I could drive a fair swarm from it and give it the foreign queen; or shall I take the old queen from the straw skep and give it the new one, thereby giving me a chance of a swarm of hybrids this season?

II. I have a very strong "Woodbury" that I intend to devote wholly to honey-gathering; it is at present full of frames, the oldest of which are two years in the hive. I have crates of sectional supers ready to put on; but I am at a loss to know exactly what day to put them on, as I know there is danger of putting them on too soon. They are very strong in bees, and young bees were out some time ago. I have also been stimulating them with the "bottle" of thin syrup. Please give me a few hints how I am to keep it wholly honey-gathering without swarming.—COMBER.

[You ask whether you can drive a swarm from a populous skep and give the purchased queen to it upon the old stand, or whether you can drive a swarm from the skep and give the new queen to the

remaining bees upon their combs? The answer is, Yes, to both queries; but the implied suggestion that in these ways you prevent all risk in the introduction is certainly not accurate. The methods of introducing queens may be varied *ad infinitum*, and failure and success are possible with all. With the hope that the latter may be yours we give a few hints which may be of general interest. If you act upon your first-mentioned plan, "giving the queen to a swarm upon the old stand," it will not be necessary to drive a swarm at all—a fortunate circumstance, as driving would involve the necessity of seeing the queen so as to be perfectly certain that she was left in the skep. Although an expert may make artificial swarms at almost any time from March to October, it is desirable here to repeat the oft given warning, that those with limited experience should not attempt it in indifferent weather or with stocks that are not extremely strong in bees. Satisfied upon these points you may proceed thus: Into the new hive put frames of comb, filling it with them if enough can be spared, and then upon the morning of a day when the bees are flying freely the foreign mother is confined in a dome cage of wire cloth upon one of the combs, the skep being immediately removed to a new station, and the frame hive made to occupy its place. The bees returning from the fields with their loads will after some hesitation enter, but finding all changed within will quickly re-appear at the door to make another examination on the wing. By degrees they will seem to determine that their new home is better than none, and making the best of it will gather around the queen, deposit their stores, and return to the fields for more. In two days the cage may be removed with almost positive certainty that the queen will be well received. A few cautions here are important, as success depends upon many little details, some of which may easily be overlooked. 1st, The cage should stand over cells containing some honey or the queen may suffer, but the cage on no account should have its edge driven into sealed cells, as the bleeding honey would smear the queen and possibly cause her death. 2nd, Honey should be coming in abundantly so as to make robbing unlikely, as the bees under the circumstances would probably not defend their new home. (The presence of brood in the combs given would save from danger from robbing, but it would increase the difficulty in securing a friendly reception for the queen, as royal cells might be started. The best safeguard is a good honey yield.) 3rd, The removed skep should for some days before the operation have been disguised, so as to give it the same appearance the frame hive will have when taking its place. A sack or horsecloth if thrown over it will assist, this being of course transferred to the frame hive when that is put upon the old station. 4th, If skeps stand very near the one operated upon many bees are likely to seek shelter in them, so weakening the swarm and perhaps causing queen-encasement in the skeps. 5th, If combs in frames are scarce two combs will suffice if the other frames are supplied with foundation. As soon as the queen is accepted a sheet of foundation may be placed between the two combs, and as the swarm can bear it others should follow, the original combs passing to the sides of the hive. This plan with judicious feeding will soon produce a hive of perfect combs with a dense population. 6th, As the swarm cannot hatch any new bees until its twenty-third day, and as many of its members were old at the first, it will considerably reduce in numbers before that time. To prevent this a frame or so of brood and eggs from the Woodbury that you desire not to colonise may be given. Foundation will of course take the place of the renewed combs.

Your second plan has two disadvantages and one advantage. Your Italian queens would be in a hive with fixed combs, giving you less chance of raising other queens from her, and you would be in danger by driving a swarm and putting it upon the old stand of unduly weakening the skep. You must secure the queen of course, but a few of the driven bees only need be put with her into the frame hive. You must be very cautious also that no queen cell is in progress in your skep, or your queen stands little chance. The advantage lies in this—that the old bees would go to the driven swarm, and the youngsters remaining could be easily induced to accept a mother-in-law.

The absolute prevention of swarming can be secured by no system of management, but this end is generally achieved by getting a hive filled with brood in all stages by constant enlargement of the brood nest, so that after supering the ceaseless hatching of bees supplies labourers for the supers and space in which the queen may continue laying. Let the super be put on just before the bees begin to fail to find room for all their brood and stores, warmly covering the former so that it may quickly rise in temperature, instead of being, as is too often the case, a means of allowing the heat of the brood nest from leaking away.—F. CHESHIRE.]

### APIS DORSATA.

(A Translation from the *Bienenzeitung*, and communicated by Alfred Neighbour.)

MUCH has been said and written about this bee, the largest with which we are acquainted. The accounts which have been published on *Apis dorsata* are nearly all by travellers who have chanced to see it, and who in their reports mostly refer to it incidentally only. Considering that these travellers were not bee-keepers, and therefore had but little or no knowledge of bees, the imperfect and incorrect information they give us as to *Apis dorsata* is easily to be accounted for; but this state of affairs is no

longer to continue. Bee-keepers who take an interest in this bee have now a fair prospect of obtaining reliable information concerning it, and may perhaps be able to see a few specimens, or even obtain a colony of these bees at some future time should it be considered worth while to introduce them into Germany.

Not long ago Professor Dr. Zadach of Königsberg, in Prussia, made it known to the Natural History Society of Brunswick that a young savant, Dr. Grabowsky, was going to pay a visit to Borneo for the purpose of collecting insects, plants, &c. It occurred to me that this would be a favourable opportunity of getting some information about *Apis dorsata*, which has its home in Borneo; I therefore wrote at once to Professor Zadach, requesting him to induce Dr. Grabowsky to look for *Apis dorsata* in Borneo, to observe it carefully, and furnish me with particulars in due course. In writing to Dr. Zadach I did not omit to state precisely the points on which I wished to be informed more particularly. I received a reply by return of post, in which he informed me that it would give him very great pleasure to comply with my wishes. We must now see what comes of it.

We may perhaps be able at a still earlier date to obtain some exact information on *Apis dorsata*. I received the other day a letter from Mr. Frank Benton of Larnaca, in the Island of Cyprus, in which he informed me of his intention to hunt up *Apis dorsata*. The following is a translation of part of his letter:—

“Larnaca, Island of Cyprus,  
“Dec. 7th, 1880.

“Since I last wrote to you my health has improved considerably, and I am well enough now to undertake another voyage in the interests of bee-keepers. My plan is the following:—Leaving here by the Austrian Lloyd steamer on the 21st inst., I shall first pay a visit to Beyrout and Jaffa, and remain there for a short time. From Jaffa I shall go to Port Said and then to Suez, Aden, Bombay, Colombo (Ceylon), Singapore, and Batavia (Island of Java) perhaps also to Timor, Flores, and the Island of Celebes, and if possible and convenient to me also to the Philippine Islands and Borneo. I intend to take with me twenty-five to thirty colonies of Cyprian bees as well as some Syrian bees, and to bring back with me fifty to one hundred queen bees accompanied by some worker bees. The queens which I intend to take home with me to the Island of Cyprus are to be of the very best races obtainable, such as *Apis dorsata*, *Apis zonata*—i.e., if I become convinced of the good qualities and value of these bees. I shall further endeavour as far as possible to collect seed of the various melliferous plants which may appear valuable to me, and which are not to be found in my native country. My plan is not an unpremeditated one, but has been discussed for a long time, and the time has now arrived to carry it out. The bees which I shall be able to obtain will be under my own personal care, and I hope to reach home safely with a good many queens. My boxes for transporting them are large, and so arranged that I can let the bees have little or plenty of air according to their requirements. The food consists of sealed honey in old combs, and sugar cake and water. In most cases I intend to feed the bees in both at the same time, and to give them sealed honey as well as sugar and water in one and the same box. I shall not stay longer in the East Indies than will be necessary for my purpose, and I hope to be back in April or even before. The honey harvest in Cyprus has been worse than any I can remember in the whole of my experience. The bee-keepers of this Island express themselves similarly. Since May the bees have literally collected nothing. The natives lost nearly four-fifths of their bees by starvation, moths, and hornets. The latter have done a great deal of damage during the long and hot summer which we had here.”

Thus writes my friend Mr. Benton. I shall not fail to report the result of his endeavours concerning the *Apis dorsata* on a future occasion.—C. J. H. GRAVENHORST.

*Footnote in the “Bienenzeitung.”*—The Editors have been informed by Mr. Frank Benton of his intended visit to India, and they purpose to write to Mr. Benton to Batavia (Island of Java) respecting *Apis dorsata*. Mr. Vogel received some very special information about this species of bees direct from India a few years ago, and in his opinion the introduction of the species (not race) would be of great scientific interest, as its hybrid offspring especially would afford bee-keepers some very valuable information. To acclimatise this bee in Germany will be impossible, as coming from the tropics it will not be able to live through our northern winter. This was our experience with *Apis fasciata*, which dies in the hive when the temperature of the air outside shows from 3° to 5° R. frost, though the walls of the hive may be both thick and warm. Nevertheless, in the interest of science we recommend the importation of *Apis dorsata*, and Mr. Vogel will announce in due course how to make it safely and without difficulty live through the winter.

There can be no question of any practical importance attending the introduction of *Apis dorsata* into Germany, but it might be possible to acclimatise it in the southern States of the United States of North America.

#### TRADE CATALOGUES RECEIVED.

Ewing & Co, Eaton, near Norwich.—*List of New Roses for 1881.*  
Thomas Painter, Smallwood, near Scholar Green, Stoke-on-Trent.—*Catalogue of Dahlias.*  
Frères Simon Louis, Metz.—*List of Miscellaneous Plants.*



\* \* All correspondence should be directed either to “The Editor” or to “The Publisher.” Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Wiring a Cucumber House** (W. W.).—A foot from the glass is a good and safe distance for the wires, but if the house is very low 2 or 3 inches less will do very well. Nine inches apart is suitable for stretching the wires.

**Evergreen Wall Plant** (T. W. G.).—The low wall is, we presume, on the outside of the conservatory; and as you require “a small-foliaged evergreen that grows closely and not too quickly,” we think *Cotoneaster microphylla* will be as suitable as any.

**Hellebore Tea** (Idem).—Two ounces of powder is sufficient for a gallon of water. A correspondent who has used it effectively finds it the best to first mix the powder with hot water to the consistency of cream, adding the cold water afterwards.

**Asparagus Small** (L. I. K.).—Without having fuller particulars than can be conveyed on a postcard we cannot satisfactorily answer your question; besides, we are quite unable to decipher the words relative to the dressing you have applied. The nature of the soil may be unsuitable, or the heads may have been cut too long and closely. Unless you have good growth in the summer you cannot expect to have fine heads in the spring. You will perhaps, however, have finer heads as the season advances. Are the beds very full of plants? Overcrowding results in small produce.

**Strawberries not Swelling** (Old Subscriber).—The plant you have sent is well grown and healthy, and the roots have not received any injury by liquid manure. We attribute the condition of the fruit to defective fertilisation. In all probability the flowers opened when the weather was dull and ungenial, and the pollen was not liberated. Had you drawn your hand gently along the trusses at midday the fruit in all probability would have set and swelled much more freely. Every berry on the plant you have sent is more or less malformed, which is conclusive evidence of imperfect fertilisation.

**The “Musk Tree”** (K.).—The plant which you state is known under the above name is *Aster argophyllus*, a member of the natural order Compositæ. It is a native of Van Diemens Land, whence it was obtained by Messrs. Lee and Kennedy at the beginning of the present century, and in a wild state it acquires the dimensions of a small tree. It is well worth cultivating in a greenhouse, as the leaves are very ornamental owing to the silvery whiteness of the under surface, and their musky perfume is also very pleasant. Ordinary loamy compost suits it very well. Specimens are occasionally seen in a collection of old plants, but it is comparatively rare.

**Heating Greenhouse** (J. E. Osborne).—Your house would be best heated by a stove boiler, which could be readily placed in a small shed as you propose at the back of the greenhouse, and would be, like your house, a tenant fixture. All that will be necessary would be to isolate the smoke flue from the woodwork by sheet iron or some other non-combustible material, and exercise the usual precautions in stoking against accident from fire. Have the boiler as near to the greenhouse as possible, and employ 4-inch preferably to 3-inch pipes, the former affording a more regular temperature. Thirty-six feet of 4-inch piping, or a flow and return along the front of the house and one end if a lean-to, or if a span along the sides of the house and one end, will give you all the heat necessary in the severest weather.

**Rooted Cuttings** (Killie).—If you ordered rooted cuttings you had a right to receive them, and if cuttings were sent just as taken from the plants a less price ought to have been charged for them. The cuttings you sent were admirably packed, and arrived in a perfectly fresh state. Some of them are small, yet they are sturdy, and much better than if they were taller by being drawn up in heat. We have not the slightest doubt that we could strike every one of them, and produce fine flowering plants. It would be a mistake if the vendor made the cuttings ready for insertion. In the first place, the cut ends might be injured during transit; and in the next, he might be blamed if they failed to grow. Such cuttings as those you have sent should be inserted immediately they are cut close under a joint, and they would not have been better if they had been prepared by the vendor.

**Hibiscus sinensis Culture** (Idem).—This plant can readily be propagated when the wood is young or half ripened if the young shoots are selected and inserted in sandy soil round the sides of a 5-inch pot. The pot containing the cuttings should be placed in heat and shaded from the sun. If a bellglass can be placed over the cuttings they will strike the more quickly. When rooted, pot the young in 3-inch pots and again place them in heat, and as soon as they commence growing the points of the young shoots should be taken out to cause them to branch. Potting should be done from time to time as the plants require it, affording good drainage, and pressing the soil moderately firm. The size of pots in which they are to bloom entirely depends upon circumstances. If a good specimen is wanted, stopping must be done as occasion requires, and



the strongest growths tied out to form the base of the plant. The bush shape is the most suitable for the Hibiscus. They will, if strong, flower in 6, 7, and 8-inch pots fairly well, but when wanted to flower the shoots must be allowed to extend instead of being stopped. A plant that has formed four or five shoots can be allowed to extend and bloom. They must be grown under the influence of light to solidify the wood as it is made, or the supply of flowers will be insignificant. After blooming, the plants should be carefully watered and kept through the winter in a temperature of about 50° to 55°, and be then somewhat drier at the roots to induce rest. About the month of February they should be well cut back, and then allowed to break into growth, afterwards repotting by reducing the old ball a little, and if larger plants are not required they can be replaced in the same sized pots. While growing a good supply of water will be needed, and when the pots are full of roots weak stimulants can be given. They will grow luxuriantly in a mixture of peat and loam, or loam and a seventh of decayed manure, with plenty of sand to keep the whole porous.

**Gymnostachium Culture (Idem).**—These are of easy cultivation, and can be successfully grown by anyone having the convenience of maintaining a stove temperature. They are easily propagated by cuttings, which root quickly if inserted in sand and placed in brisk heat in a close frame or under a bell-glass and well shaded. After the plants are well rooted specimen pans can be made up with a number of them. The centre of the pan should be elevated considerably, but this should be carried out according to taste. They can be grown to look well in baskets or in small pots. They delight in a light soil, which should consist of fibry peat, the small particles of soil being shaken out, sphagnum moss, charcoal, and plenty of sand. While growing abundance of water should be given and the plants liberally syringed. They grow with the greatest rapidity in a close moist atmosphere well shaded from strong light. When specimens are made up and the plants have grown a little the growth should be pegged down, when the stems will quickly throw out a number of roots. These plants are very beautiful when grown in connection with small-growing Ferns to cover vacant walls in stoves. They also look very attractive when growing amongst the moss on Orchid pots, but must be kept in due bounds. *Gymnostachiums* will not fail to grow luxuriantly if plenty of heat, water, shade, and a light compost is given them.

**Salvias for Winter (Idem).**—The following are all worthy of cultivation—*S. splendens* and its variety *Brautii*, *S. Pitcheri*, *S. Bethelli*, *S. Heerii*, and for spring *S. gesneriflora*. Dark green paint would look the best for your hurdles.

**Vine Management (A Yorkshire Curate).**—We submitted your letter to the writer of the article to which you refer, and he replies as follows:—"According to the description of the wood and leaves your Vines made last year the treatment applied to restore them to health and vigour was right, and you cannot do better than persevere with the same means. Shoots 6 inches long in three weeks is very satisfactory, but five old rods and seven young canes in a house only 12 feet long are too many by half. It is too late to cut any of them out this season; but if the young canes show sufficient bunches to form a fair crop we advise you to take every shoot from the old rods and give the house entirely up to the growth of the young ones, as it is from them you will derive the most benefit in future. Denuded of their leaves and side shoots the old rods will not interfere with the growth of the young canes, and the former can be cut away altogether next pruning time. 'Just moist' is not sufficiently wet for the inside border now that the roots will have so much demand on them. A thorough watering once a fortnight will be needed so long as the Vines are growing, and unless the rainfall is abundant the outside border should be treated in the same way. Liquid manure is preferable to clean water. That from a cowshed is good, and so is guano, dissolving 1 oz. to every 4 gallons of water. One bunch to every foot run of rod is what we generally allow as a good crop; and if you can secure this, although the bunches may be small, we would not let more remain under the circumstances. The leafless rod is included in the above rate; but the bare rod shows the further necessity of encouraging the young canes. The straw should be removed from the surface of the border, and a 4-inch-deep coating of good manure be substituted for it. The haybands will do no harm through being allowed to remain. One half of the berries may safely be thinned out before they are the size of peas, and if they become too close as they swell a few more may be taken out before they commence colouring."

**Man-eating Tree (T. J. S.).**—We have made inquiries, and cannot learn that any tree known under the above name exists in England. Some time ago an article was sent to us on the subject, but it was of such a sensational character that we refused to publish it. You have probably seen the same article in print somewhere; and if so, our opinion of it is that it was founded on some fable that originated in uncivilised minds, and was turned to account by manufacturers of paragraphs of "startling information."

**Grape Bunches Withering (R. Davies).**—The most probable cause of the bunches withering is a sudden check, such as would be likely to arise from the prevalence of such prolonged cold as we have experienced lately. The days have been very bright and the air unusually cold, which in itself would do no harm unless it were admitted in such quantity as to cause excessive evaporation from the leaves and so check the supply of sap to the bunches, and they would in that case curl up and shrivel. It certainly is a check of some kind, and this we think the most likely one. Indeed, we have in the centre of a house two Muscat of Alexandria, upon which, at the top of the house, the bunches have shrivelled in a similar manner, entirely due to the sliding light being let down over them admitting a current of cold air. At the lower portion of the Vines the bunches are all that could be desired, and the foliage is good. It is better when the external air is cold to allow the temperature of the house to rise 5° to 10° than to admit a quantity of air to reduce the heat, which usually results in a disastrous check. The bunches may also have withered from the roots in an outside border not being active so as to meet the demands of the foliage. More moisture in the atmosphere would have done much to remedy the evil, especially if accompanied with a few degrees higher temperature at night. There is yet another, and by far the most frequent, cause of the bunches shrivelling—viz., immature wood. This may result from the roots being in a badly drained, consequently wet and cold border, or from not attending to the conditions essential to the maturation of the wood by insuring a free circulation of air and a warm rather dry atmosphere. It may also arise from overcropping, but this can hardly apply to your case.

**Vines and Bees (M. C., Worcester).**—By all means retain your bees, and increase them too if you desire to do so; and if the Vines do not succeed it will certainly not be the fault of the industrious insects. We have had ten hives within as many yards of a vineyard that contained many more varieties of Grapes than you have, and all of them produced satisfactory crops.

**Broccoli for Succession (J. E.).**—This further reply to your letter has been sent to us by a gardener of great experience. "Walcheren is not properly classed as a Broccoli, but is (as should all that head the same season be classed)

a Cauliflower. The term Broccoli as now applied is a misnomer. It originally referred to an open or somewhat branching head, but is now applied alike to those plants which have close heads—i.e., Cauliflowers, whether they head the same season as sown, or not until the following season. In order to obtain a succession of Cauliflowers (cooks call Broccoli by that term) all the year round, a sowing should be made the third week in August, and the seedlings should be pricked under handlights or in frames early in October. They will afford heads in June from the handlights. It is well to sow some early kind, as Early London or Erfurt Mammoth, which precede Walcheren by ten days or a fortnight. Another sowing made on a warm border from the middle to the end of March of Walcheren, will come in late in July or early August; another sowing of the same about the middle of April will come in in late August or early September, and Veitch's Autumn Giant sown at the same time will succeed them. A sowing of Walcheren the middle of May will yield heads in October onwards, and by lifting the plants when the heads are the size of a teacup, and laying them in in pits or frames with protection in severe weather, a long succession may be secured. Veitch's Self-protecting Autumn and Snow's Winter White Broccolis sown early in April will give heads by December; and in an ordinary winter, by lifting and protecting as described for Cauliflower, heads may be had up to February or March, when Penzance sown early in April will come in, followed by Cooling's Matchless and Leamington in late March or early April, and succeeded by Lauder's Goshen, Wilcove, and Model, a very fine late kind. These may be over in an early season by early May. In a late one heads may be cut in June; but to secure an unbroken succession some of the latest should be lifted when the heads are not larger than a teacup and laid in under a north wall. Indeed to secure a late supply of Broccolis, plants at planting time should be planted on a north border so as to succeed those in the open quarters. In such borders we have had Wilcove equal to any summer Cauliflower in May, and Goshen and Model as late as the middle of June, and shall have them this season. All late Broccolis should be sown in April. Sown in June some of them will not head at all. In warm localities Snow's Winter may be sown in May, it being half Cauliflower."

**Names of Plants (W. B.).**—Mr. Wm. Paul thinks your Rose is *Monplaisir*, which he describes as an excellent variety for growing under glass if "starved and not pruned much," but the flowers rarely open well out of doors. (*E. S. Clarke*).—Your Camellia is probably a sport from *Eclipse*, which occasionally produces flowers exactly like the one you have sent. It used to be grown in the Waltham Cross Nurseries, and probably is still included in Mr. Paul's collection. (*W. H. Myers*).—1, *Epimedium pinnatum*; 2, Specimen very much withered, but resembled *Gesnera Blassi*. We have received other plants presumably for naming, but no notes accompanied them, nor have been received by post in reference to them.

#### COVENT GARDEN MARKET.—APRIL 20.

No alteration to quote. Prices remain the same; business quiet.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	1/2 lb.	0 0 0 0	Oranges .....	1/2 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	1/2 lb.	0 0 0 0	dessert .....	dozen	4 0 8 0
Cobs.....	1/2 lb.	2 0 0 0	Pine Apples ....	1/2 lb.	1 0 2 0
Gooseberries ...	1 sieve	0 0 0 0	Strawberries ...	per lb.	6 0 8 0
Grapes .....	1/2 lb.	6 0 15 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	1/2 case	12 0 18 0	ditto .....	1/2 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ...	1/2 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	1 sieve	0 9 1 3	Parsnips .....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Capstems.....	1/2 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzonera .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 8
Fennel.....	bunch	0 3 0 0	Shallots .....	1/2 lb.	0 3 0 0
Garlic.....	1/2 lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE FIELD CULTURE OF GOURDS AND PUMPKINS FOR CATTLE FEEDING.

MANY of the Gourd family are used for culinary purposes in most countries, especially in France and other continental States, as well as in America and Canada, but except the dwarf Marrows they have not hitherto been generally appreciated in this country for culinary purposes. Our object in the following remarks is to show how these fruits can be rendered useful as food for cattle, especially in the eastern and southern districts of England. In

order to illustrate this in a practical manner we will give some experience of a grower of this fruit in Hampshire at Bursledon, near Southampton—Mr. Joseph Blundell, who in 1860 commenced growing Gourds for his own amusement; and after having obtained as great a variety of seeds as he could from every country where they are cultivated, and having grown them on his own farm for several years, he conceived the idea that some kinds might be made available for feeding of cattle, and for extending their culture by the sale of seed of the kinds best adapted for the purpose, being offered to the public under the title of “cattle Melons” and “cattle Marrows.” In 1864 a considerable quantity of seed was sold; in 1865 the sale of seed became still more extensive, and was sent to growers and seedsmen in every part of the kingdom, also to America, Australia, and New Zealand.

We will now give a copy of a circular that was published by the gentleman referred to, calling the attention of growers to the seed for sale, headed “The Cattle Melon and Cattle Marrow of 1865.” “Having during the past season supplied a large number of growers with seeds of my cattle Melon and cattle Marrow I need scarcely add that they have been extensively grown in nearly every county of England, also in different parts of Ireland and Scotland. Many growers have written me very satisfactory accounts, both of the large size of the fruit produced, as well as the abundant quantity per acre. The correspondents have agreed in a remarkable manner as to the feeding value of the fruit, some having given them with good effect to horses, some to cows and pigs, others to sheep, all accounts concurring as to the avidity with which the animals consumed them, to which I beg to add my own experience of the past season. My crops both of Melons and Marrows—some of which have been produced as an intermediate crop with Mangolds, others grown by themselves—have proved very abundant, and much superior to the produce of the two previous seasons, in both of which I grew 40 tons per acre. I have proved the value this season of other sorts and varieties than those previously grown, and the result is very satisfactory both as to the cropping and feeding value of the new sorts; in fact, some of the Marrows, which weighed 85 lbs. each, grown in the open field are an immense improvement upon any I had before seen. The combined growth of both Melons and Marrows on the same land, too, is particularly advantageous, some coming early to maturity with great numbers of fruit and but little foliage, others throwing out luxuriant runners, producing fruit of immense size and valuable feeding properties. As an instance of this I give the letter I received from Dr. Voelcker, and his analysis of part of a fruit, which weighed 54 lbs.

“11, Salisbury Square, Fleet Street, London.  
“November 22nd, 1865.

“DEAR SIR,—I have the pleasure of enclosing a copy of an analysis of your cattle Melon. You will find oil mentioned as a constituent of this specimen of cattle Melon, and in comparing the results with the composition of your former cattle Melon you will observe a larger amount of albuminous compounds (flesh-forming matters) in the last variety than in that previously analysed by me. These differences are due to the fact that in the present instance the seeds in due proportion were mixed with the flesh, and both analysed together. The seeds are very oily and rich in flesh-forming matters, and have the oil and larger proportion of flesh-forming matters in the present analysis.—Yours faithfully, AUGUSTUS VOELCKER.

“Composition of cattle Melon sent by Mr. Jos. Blundell, Bursledon, near Southampton :—1, General composition :—Water, 92.98; organic matter, 6.42; mineral matter (ash), 0.60; total, 100.00. 2, Detailed composition :—Water, 92.98; oil, 0.78; albuminous compounds (flesh-forming matters containing nitrogen, 0.245), 1.53; sugar, gum, and digestible fibre, 2.51; woody fibre (cellulose), 1.65; mineral matter (ash), 0.60; total, 100.00.”

“The foregoing analysis is certainly favourable, inasmuch that it not only exhibits valuable properties for the feeding of milch cows, store pigs, &c., but also constituents really essential for

fattening animals—viz., oil and albuminous compounds, including flesh-forming matters, in addition to sugar, gum, &c. I was, in fact, quite prepared to expect a good analysis from my new sorts grown this year, my stock having done so well upon them. The young store cattle, both Devons and Shorthorns, are receiving only a limited quantity of Melons and Marrows with wheat straw, and nothing can show finer condition than they do. The pigs and dairy cows have also a liberal allowance of these fruit daily; the latter get them carted on the pastures, where they are spread and chopped with a spade. In this way they are all consumed without waste. The fattening bullocks have received no other root or fruit, except the Melons and Marrows, for the past seventeen weeks, which are cut with the Gardner's cutter, a small quantity of Barley and Bean meal being mixed with the cut fruit, and straw given *ad libitum*. Upon this feeding they have all fattened well, and will be sold for the Christmas shambles.”

After giving this quotation relating to their use as cattle food, and as an illustration of what has been done by this experimental grower, we will now proceed to state what we have seen and the practice of others as to the culture and value of Gourds. This food for cattle was never intended to take the place of Mangolds or other root crops, but merely to fill up a vacuum in the months of August, September, October, and November before the root crops were ripe. It has also proved of advantage where grass is short in the autumn months; and properly cultivated Gourds prove an excellent food for the use of dairymen, cow-keepers, and the owners of a cow or two in suburban villa farming, because we have no root or fruit which is better adapted for feeding cows where first-class butter is required, this fruit being entirely free from all acrid matter, or anything likely to injure the flavour of butter, such as Turnips and Cabbages. All soils suitable for the growth of root crops where the climate is mild and moist will produce cattle Melons, and the cultivation and preparation of the land may be the same as for roots. The manure most suitable is found to be yard or town dung, otherwise guano or night soil nitrate of soda, or any manure rich in ammonia. They are best grown as a mixed crop, in order that room may be obtained for their trailing habit of growth, and for the prevention of the wind rolling the runners over, which greatly impedes the future growth. For this purpose two rows of Mangolds, Potatoes, or Cabbages may be grown 2 feet apart, then dibble the Melon seed on one ridge the same width as for the two rows of Mangolds, &c., applying the same quantity of manure as for rows of roots, thus growing alternately two lines of roots and one of Melons. The manure should be buried in the centre of the stretches and ridges, and the Melon seed hand-dibbled  $1\frac{1}{2}$  inch deep, about 2 feet apart directly over the manure, about the first week in May. They are easily produced and cultivated at as little expense as ordinary root crops, and prove an excellent alternation where the constant repetition of root crops has rendered their growth difficult and precarious. We have often seen fine fruit grown upon heaps of compost manure intended for pasture land, also on borders near hedges or fences. A hole dug 2 feet square with a shovelful of manure buried will often give an abundant crop, the land and adjoining hedges being loaded with large fruit. They are often cultivated in America amongst Maize plants, and we have seen them so in the south of England. We have also seen Sunflowers grown amongst them, and these furnish a large quantity of poultry food, and answer a good purpose in preventing the runners of the Gourds rolling over before the wind. Of course the Gourds are sometimes grown alone, and we have seen enormous crops, especially where subject to irrigation. A grower in Somersetshire grew the dark green American variety very large, two fruits upon one plant, one being 160 lbs., and the other 120 lbs. The yellow Gourd in France has been known to reach the enormous weight of 330 lbs. A Gourd grown in Canada was exhibited last Christmas

at the Metropolitan Cattle Show weighing 313 lbs. We have also seen fine Gourds grown in woodlands where not overcrowded with timber trees, and planted the first season after cutting the underwood, particularly in sheltered valleys, where the land is moist and composed of vegetable mould, small mounds being formed, and manure or guano dug-in; in this way the plants have plenty of room, and are not encumbered with weeds, the underwood shoots shelter them and keep them in position.

#### WORK ON THE HOME FARM.

*Horse Labour.*—The work has been heavy lately, and where the animals have not had some Mangolds in addition to their usual dry food of Oats or Maize with hay they will, in some cases, have lost condition. One thing, however, is greatly in favour of the horses, and it should be carefully attended to—that is, the employment of steam power to perform the first cultivating or scarifying of the land deeply fallowed in the early winter. This should be done by the steam cultivator across the furrow at an acute angle first, and the second time it should be done across the first work. The land after being treated in that way is quite ready for the new self-acting drag-harrow made by Howards of Bedford, and by a couple of times with this implement; the land may then be rolled with the Cambridge ring roller, then two times with the iron harrows, and after being rolled the second time, and one time with the iron harrow, the chain harrow may be used with good effect. The land will then be ready to be cleared of the couch, of which there is on most of the fallows we have noticed lately a rather large quantity upon many farms owing to the wet seasons of 1878 and 1879. The practice generally is to burn it, but our plan has been for many years to burn only enough to furnish ashes sufficient to drill with the manure for the root crop. All couch in excess of that requirement we prefer to cart away to heap if we have no pasture land near which has been fed down close enough to lay out the couch upon, and spread as fast as laid out. In this way the succession of the grass on the pasture would be delayed only for a few days, and if chain-harrowed and rolled down there would spring up in about a fortnight a most abundant crop of grass. If, however, we have no land near in a fitting state to receive the dead couch we prefer to heap it, for we consider it unwise to burn any vegetable matters which will decay. The weather having been so fine during March and the first week of April, Barley sowing is now completed or ought to have been; if not, the sooner the better, and the same may be said of Potato planting. Sowing Mangold seed may be now commenced, and after it has been sown it will flourish regardless of weather if the land has been liberally manured either with yard or town dung. We prefer, however, artificial manures sown broadcast upon the surface, and then to throw two furrows together and drill or hand-dibble the seed upon the stretches thus formed, for the manure will be found just under the seed in readiness to act upon the young plant. Where the land works soft and fine stretching answers well, but where the land is rough and cloddy throwing two furrows together makes a poor seed bed.

*Hand Labour.*—At this time hand labour is a very important item of farm practice and expenditure, and will require all the attention and intelligence of the home farmer.

*Live Stock.*—The cattle and sheep, in most instances, have as yet passed through the period of scarcity of roots and green fodder better than was at one time anticipated, especially where feeding stuffs have been liberally supplied to them. In the cattle markets, which are again open, the sheep and lambs are in excellent condition when we consider the wretched weather which prevailed for several months. Sheep, too, come out of their wool in good condition and sell well in the London market; in fact, vendors of shorn sheep always find a worse market in the country when early shorn than they do in the metropolitan market. Much has been said lately about the slaughter of all stock sent to that market, and it is to be hoped that it will be made a standing rule from this time forward that no cattle or sheep be allowed to come out of London alive. We know from past experience that cattle and sheep purchased in London have generally done more towards spreading disease than has occurred in any other way, and especially we include the Deptford market for foreign stock, from whence the latest outbreak of foot-and-mouth disease spread into the country. We cannot see, even in the interest of the consumer, why the whole supply of foreign meat should not be imported dead, for under the present importations there is less loss and far less expense attending the dead meat than the live cattle importations. This is the time of year when the breeders of both sheep and cattle are selling their stock to the feeders in the pasture districts. We do not see the necessity of two parties being engaged in the breeding and fattening of stock, and the home farmer should consider the policy of breeding all the stock he requires for feeding, and by that means obtain not only all the profit from the two transactions, but also escape many losses. The home farmer in stocking the grass and parklands should also consider the policy of feeding the grass hard with sheep. It is, we know, common in good pastures to feed one bullock and one or two sheep on an acre—but why? We have asked this question of many business men, and have received but little reply, except that it is customary; but let it not be forgotten that the sheep will eat the best herbage, and thus injure the feeding value of the future produce.

#### VARIETIES.

*HOMING PIGEONS AS BIRDS OF WAR.*—Apart from the fact we have noticed on page 304, of the strange return to the old traditions and the consequent disappearance from our fowl lore of the 'gentle bird of peace,' there is a world of interest in this innovation of modern war. This pretty flying column without weapons may be so terribly powerful, and strike its blows so swiftly and invisibly, that, though telegraph wires may be cut, the shades of night prevent the working of the heliostat, and the vigilance of vedettes make the carriage of despatches impossible; yet, let the night be never so dark, and the enemy never so watchful, the news that may be their ruin will get through their lines. No sentries or battlements, no scouts or outpost duty, will be able to intercept the sudden messenger whose wings they hear passing overhead. Under that wing, fastened close by a silken thread, lies the little missive which may make all the difference between victory and defeat, which may betray tactics, encourage a wavering garrison to renewed resistance, or summon to the scene a shattering strength of reinforcements. All this, and more, may be hidden in the down of the Pigeon's under wing, and the enemy know it well, yet be powerless to prevent the bird from carrying over their lines to the beleaguered fortress, or to the head-quarters of the opposite camp, the news which they would give so much to intercept. A battalion of men could not carry what the one bird will; and thus resistless, it deserves to be ranked as a formidable feature in the adversary's equipment.

— *PROOFS OF AGRICULTURAL DISTRESS.*—Signs of the distressful agricultural times are plentiful. We hear of a market garden farm of 200 acres, not forty miles from London, the rent of which has recently been reduced from 22s. to 11s. per acre. An adjoining farm has been let on a seven-years lease, free for the first three years, while during the remainder of the term the rent will be 7s. per acre. Another large farm, with a good residence, is let for £70 a year, and the tenant re-lets the shooting for £60. In the midlands there is not the same inclination to let land for what it will fetch. Hence it is that 30,000 acres in Leicestershire are said to be still in hand. Rents in that county have been very high; and rather than let their farms at lower rates, landlords prefer to sell the crops and grass annually by auction at very uncertain prices.—(*Land.*)

— *THE Manchester Examiner* has published some extraordinary statements as to the reductions in the rents of agricultural land in the midland and southern counties, collected by a well-informed correspondent. It states that in Lincolnshire the rent of marsh land has fallen 30 or 40, and of clay land 40 or 50 per cent., while in the Fens many farms may be had by tenants who are ready to pay the rates and taxes. In Hunts the value of the fee simple of land has been reduced one-third. In Bedfordshire new lettings are from 25 to 75 per cent. under the old rates. In Essex rents have gone down by 40 or 50 per cent.

— A DAILY paper commenting on the above says:—"In some of the southern counties matters are still worse. In Wilts, for instance, on the northern edge of Salisbury Plain, a large portion of the farms are now unlet. On one estate all the tenants have left, and the land is now covered with grass and weeds; and on another estate some of the stiff land farms have been re-let, the first year rent free, and after that at less than half the former rent. The following are samples of the reductions on other estates:—A 1450 acres farm, from £1050 to £810; a 700 acres farm from £600 to £400. It is said that another 700 acre farm on a stiff soil has been recently let for £60 a year."

— *AGRICULTURE IN IRELAND.*—In the earlier parts the sowing of grain, and also the planting of Potatoes, are now almost finished. In many districts, partly owing to the abundance of last year's crop and to the low price of Potatoes, a larger quantity of them than usual has been planted. A correspondent in the south-west states that there many of the small tenants have planted a much greater breadth than in recent years, and most of these, he says, have used their own seed—Champions imported last year from Scotland. The sowing of grain, he says, is almost completed in some districts of the south-west, while the grass fields are looking extremely well; indeed, some well-sheltered fields are already affording good pasture to stock.



Fat stock are selling at very low prices, but for lean cattle there is a fair demand at satisfactory rates. Breeders of store stock will be interested, but not pleased, to learn that there is every prospect of large importations of Canadian and United States cattle during the coming season. An extensive English firm of salesmen state that they know for a fact that the shipments of Canadian and American cattle will be unprecedentedly large, especially in the early summer months.—(*Irish Farmers' Gazette*.)

— AMONG French farmers it is considered much better to give Beet or Mangold Wurtzel pulp to sheep and cattle for production of meat than for milk. Horses will not eat it readily. The daily rations of pulp given to sheep and cattle vary, but the amount generally considered most favourable are about 5 lbs. per head for sheep and 50 lbs. for cattle, in admixture with hay, seed cake, corn meal, or other food. The pulp is stored for preservation in trenches or silos, and for this purpose it is mixed with about 1 per cent. its weight of salt to prevent it from entering into putrefactive fermentation.

## POULTRY AND PIGEONS

### SEASONABLE HINTS.

We are now at what may be called the turn of the season, and a few hints as to general management may not be out of place.

First as to the old stock. Fanciers who have any intention of exhibiting at the summer shows will do well now to take a general look through their stock and select the most likely birds for the purpose. The breeding season is practically over, and the hens intended for show should be separated from the cocks. If in consequence of bad hatching, results which we fear have been too common this season, it is still necessary to set a few eggs from the best hens; their plumage can be protected from damage by merely allowing them to run with their mate for an hour each morning, and keeping them separate the rest of the day. With light-coloured birds and such of the darker ones as become tanned by exposure to the sun care must be taken that they are placed in the most shady houses. Any tendency to broodiness in the exhibition hens of the sitting varieties must be promptly checked, as the plumage becomes damaged and brittle by lying on the nest. Imprisoning the hens under an open wire coop placed on bare earth and giving an abundant supply of food are the best means of checking the clucking fever. If there be several cluckers, putting them all together will accelerate the cure.

In preparing Asiatics for exhibition at this season it is necessary to be cautious that the food given be not over-stimulating. Many a fine bird apparently in robust health one hour has been found dead the next from apoplexy, and any excess of stimulant accelerates, if it does not actually cause, attacks of this nature.

Next as to the chickens. Those who are fortunate enough to have a number of January chicks may now with advantage begin the process of weeding out the worthless birds. We cannot give any general directions as to this subject. Very much depends upon the breed and something also upon the strain, so that each young fancier must either call in the assistance of a more experienced friend or learn from experience which birds may with safety be disposed of. If space be at all limited merely in the weeding process is a mistake. It is better to kill one or two valuable birds than to run any risk of stunting all through overcrowding. Frequent changes of run, and if possible a move to a perfectly fresh run, do much to keep young birds in health and to stimulate growth. Where space will not allow of this, the frequent turning over of the soil and a liberal supply of green food will do something to replace the freedom of larger runs.

In the Spanish and Dorking breeds some of the chicks will now be at a critical period, when the rapid growth of feather causes a heavy drain upon their natural resources. In such cases the feeding will require special attention, and the addition of a little stimulant, such as bread soaked in ale, often has a most beneficial effect.

The older chickens must not be neglected for the younger, nor should they be all fed together, as this does not give the older birds sufficient time to get an appetite. The length of time between the meals must be gradually extended until birds which were fed every two hours at a fortnight old are reduced to four meals a day at the age of three months.

Lastly, a thorough weeding-out of the old birds must now be made, all those which are not likely to be wanted for breeding next season

being cleared out to make room for the youngsters. It is a bad time for selling, but it is better to take a smaller price now and get the birds out of the way than to keep them six months on the chance of getting a better offer. Beginners would do well to remember that a bad selling time is a good one for buying. Good birds which their owners would not sell except at very high prices early in the season may now be had at very moderate rates. In this way a fair start without too heavy an expenditure may be made on the suitability of a breed tentatively ascertained before actually taking it up.

### FOOD FOR CHICKENS.

THIS subject, like that of coops, is no new one, and we do not pretend to have discovered any new recipe for rearing every chick without fail. While, however, our system is old many of our readers are, we believe, young, or at least young in poultry breeding, and so at the risk of some repetition we will again give a few rules for the systematic management of chickens. To begin with, a chicken requires no food for from twenty-four to thirty-six hours after it emerges from the shell. Nature requires perfect rest for it under the hen, for during this time the development of some of its organs continues, and just before it bursts the shell enough yolk has passed into its stomach to provide temporary nourishment.

Novices sometimes cram young chickens, and thereby do much harm to them. Little or no trouble need be taken to make them eat, beyond giving them light and crumbly food that they can swallow and digest. For the first week or ten days chickens can hardly be fed too often, provided nothing is left about after each meal. Sour and trampled food disgusts them, and does more harm than a moderate amount of starving. The question is, What should this food be to begin with? Nothing is so light as chopped hard-boiled egg and bread crumbs, but if the weather is not severe we prefer dispensing with the egg. When chickens have such dainties there is always a difficulty in weaning them from them, and therefore, except in special cases, we always prefer at once beginning with what is to be their general diet. In our yards the staple of this is oatmeal. We were always struck with the vigour and hardihood of Highland children reared almost entirely on oatmeal, and so we adopted it for our chickens. Good Scotch oatmeal is boiled into porridge. That it should be properly boiled is most important. If too much is put to the amount of water, or if it is not properly stirred, good food can never be made from it; there will be heavy sticky lumps. The porridge should be made in the same way and with the same care as for human beings; kept in a cool place it will then be good for two days. As much as is required for each meal should be mixed with Indian meal, coarse barley meal, or occasionally bran, into a nice light crumbly food. This no chickens will refuse if given fresh and fresh, and on it our own have never failed to thrive. If the season be cold or inclement, instead of the plain oatmeal equal quantities of oatmeal and Spratt's food should be boiled together. Stimulants are sometimes necessary, but as a rule we find chickens fed on them, especially if there be meat in their composition, gain flesh at the expense of their bone and muscular strength. For the same reasons we suppose that human beings fed much on meat in their early days generally have bad teeth.

There is a constant controversy between those who give water to chickens and those who withhold it. After many experiments we have come to the conclusion that in winter they are better without it for a week or ten days, but then we give them bread and milk twice a day. Milk is a great bone-maker, and strengthens the constitutions of chickens amazingly. There are many apparently trifling cases which make much difference to the little creatures, among them is this—viz., that the bread and milk be properly made. The bread must first be thoroughly scalded in boiling water, the water strained off, and the milk poured on to it; they will then eat it with the utmost greediness and drink the milk as readily as kittens. For summer and late spring, chickens must from the first have more to drink, at least our own experience is that they soon droop if they have not. Milk left in the sun soon turns sour, so pure water is preferable, but a morning meal of bread and milk should be continued.

We are constantly asked, "How many times a day must young chickens be fed?" This depends on many things. In winter and the early spring when there is snow and frost and little or nothing to be picked up they should be fed six times a day, say twice with bread and milk, three times with oatmeal, and once with chopped house scraps, if such there are; the latter feed, even if it be but a minute one daily, makes a great difference in the progress of early chickens. At such a time of year they require all day to be kept in a state of repletion to make up

for exhaustion from cold and the long nights; when warm weather comes and the broods are running over grass for twelve hours a day even the youngest will do four or five feeds a day. It is better for them to have to hunt for some of their provender, and constant exercise prevents them outgrowing the strength of their legs. When chickens are ten days old they may begin to have a last feed in the evening of groats or small Wheat; these digest slowly, and give warmth through the night; they must, however, be distributed with judgment—far better not at all than in indiscriminate quantity. Careless people often give chickens enough to gorge themselves, at the same time leaving their drinking pans empty; the result is too often that their crops are strained by the mass of hard swelling food and burst, or become permanently loose. Up to three months old all young birds, whether intended for the table or for exhibition or breeding stock, should be fed regularly four times a day. Henceforth three good feeds will suffice. It should be remembered that when the bird is destined for the spit as soon as ever ready no harm will be done by forcing it a little—i.e., it may be more frequently fed, and some of the many stimulating foods now sold may be mixed with the oatmeal. Where, however, the strength of constitution and eventual size is desired, then the system we have described will be found effectual.—C.

#### NOTES ON HATCHING.

THIS is a subject in which every poultry-keeper is interested at the present time. Since incubators have been so much written about, it is very seldom we see anything upon the old-fashioned way of hatching with hens; but this is still by far the most common way of securing young chicks, and is likely to remain so until incubators become much more reasonable in price than they are at present. Unless it is a second-handed machine that may sometimes be advertised cheap, incubators alone cannot be bought for less than £5, and apart from this there come the necessary additions in the way of drying nests, indoor rearers, outdoor rearers, thermometers, &c., which cannot be obtained for much less than £10. Those who keep poultry solely for pleasure may not object to expenditure of this kind, but those who study the profit question—and the great majority do this—will, I am sure, continue to utilise their broody hens for hatching. It is certainly the most profitable purpose to which fowls in that state can be applied, and they are always safe and little trouble.

Early layers are always early sitters, and those who want broody hens in January and February can generally manage it by hatching early, feeding well in the autumn, and keeping them in warmish quarters to induce them to lay. A quiet nest with a few dummy eggs in it are useful in such cases. There is no difficulty in having broody hens from the end of January onwards. It is always best to allow old hens to sit and settle a few days before putting the eggs under them. From the first they should be in the nest they are going to sit in. Baskets, boxes, or places made for the purpose will do. Too much space should not be given, enough for the hen to sit comfortably is all that is wanted. If the entrance to the nest can be closed so much the better. Some advocate having the nest on the ground, others some distance from it, but I have had as fine hatches from the box nests 4 feet from the ground as from the level. The place should be cool, not over-draughty, and the ground should always be moist. I do not approve of trusting valuable eggs in woods or outside confined quarters, as foxes are always prowling about.

It is often asked, At what age are eggs too old for hatching? Not older than ten days, many will say; but I do not agree with this altogether. I have had old hens which laid away in the woods return with as many as sixteen chicks, proving, I think, that the oldest of the eggs must have been at least upwards of three weeks old. The game-keeper here, who hatches out annually about 1500 Pheasants with hens, tells me that sometimes they sit eggs a month old, and they appear to be little or no way inferior to the freshest. Providing they have been kept in a cool place, I think eggs would be quite fertile at the end of twenty days. When eggs are fresh and hens ready, there is no reason why they should be kept so long. Sometimes, however, it is necessary to keep them for want of hens, and it may be convenient to know how long they will remain good. The fresher the eggs are, the sooner do they hatch. Sometimes when I have put a dozen under a hen, some of them being ten days old, and others hardly cold after being laid, I have found the latter hatch out at the end of the nineteenth and twentieth days, while the old ones barely came out on the twenty-first day; and this is not desirable, as much difference often leads to the loss of the last chicks. No brood is ever better than when all the chicks come out within an hour or so of each other, and this can easily be secured by paying attention to having the eggs all as near the same age as possible.

With young beginners broody hens are often liable to be over-attended during the time they are sitting. The less they are disturbed the better. Once a day ours are fed and watered, and after that they are never looked at again until the following morning. They are fed on grain only. In connection with this there is another question which often leads to much doubt, and this is as to what time the hen should remain off the nest. Young pullets will often rush back to it after being only a few minutes off, others will stay away for half an hour or more. In the one case are the eggs over-hatched, or in the other are they sufficiently so? To the first question we answer No, to the second Yes. So long as they do not remain off more than half an hour we never feel alarmed, and if they do go back at the end of the first five minutes it is just the same. Some little difference this may probably make, but I can say it is neither seen or felt in practice. As a rule our hens remain off their nests about fifteen minutes.

If those who have many unfertile eggs would look to the condition of their male birds an alteration might be effected. During the time hatching is taking place I never remove the hen or allow her to leave the nest, although it is seldom they wish to do so at such a time. The chicks should be left under the hen to become dry for some hours before removing them. The very best start young chickens can receive in life is to be thoroughly dried under the hen. I have seen many young chicks die before they were many days old through disturbing them and the hen too soon. Healthy chicks will soon let anyone know when it is time to bring them food, as they quickly show their little heads from under the breast of the hen when they are able to bear exposure. When removed from the nest altogether they should have dry ashes or sand placed in their run, and for the first fortnight or more they cannot be kept too much before the sun or too much away from cold winds. Lately I have had some young chicks doing remarkably well in Cucumber frames.—M. M.

#### OUR LETTER BOX.

**Pheasants not Hatching** (*A Poultry Fancier*).—Pheasants' eggs hatch badly for the same reason that hens' eggs do so—viz., the extreme dryness of the atmosphere and parching winds. They should, if possible, be set in a damp place; a week before they are due to hatch be put for twenty minutes into warm water, and again two days before they are due. The nest may also during the last week be daily sprinkled through a rose.

**Coloured Dorkings**.—A correspondent wishes to purchase fertile eggs of a good strain of this breed. Those who have eggs for disposal should advertise them.

**Chickens not Hatching** (*F. Jones*).—It is not uncommon at this time of year, especially after such cold dry winds as we have had, for eggs to hatch two or three days after their time. This is often the case, too, if they have had a chill from the hen remaining off too long. We think you certainly did wrong in cracking the eggs. If they had been left alone they would probably have hatched properly, and the chickens have been stronger. As to their being unable to stand, no chicken can stand the moment it has left the egg. Black Spanish always hatch with white breasts and white in the wings as you describe.

**Thousand-Headed Kale** (*North Wills*).—It is very productive and hardy. The seed should be sown now, and the plants when large enough planted 2 feet apart in rows 3 feet asunder. It is valuable for ewes and lambs, as many shepherds have found who have been fortunate enough to have a supply of it during the present inclement spring.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1881.		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
April.												
Snn.	10	30.017	46.8	42.9	N.E.	43.8	59.5	35.2	94.1	29.4	—	
Mon.	11	29.823	52.6	50.0	N.E.	44.7	60.5	38.4	95.4	34.6	0.208	
Tues.	12	29.890	51.0	50.2	S.E.	45.	58.7	46.6	99.5	43.2	0.030	
Wed.	13	29.916	55.7	52.3	N.E.	46.5	64.7	47.1	110.5	44.4	0.010	
Thurs.	14	29.855	52.6	50.7	N.E.	47.	63.0	46.3	97.4	42.2	—	
Friday	15	29.911	49.8	47.7	N.	47.3	63.0	45.2	97.0	44.0	0.015	
Satur.	16	29.989	49.7	47.2	N.E.	48.0	59.4	39.9	86.8	34.4	—	
Means.		29.907	51.2	48.7		62	61.3	42.7	97.3	38.9	0.263	

#### REMARKS.

10th.—Not so bright as previous days; but less wind and warmer.

11th.—Overcast and slight rain in forenoon; afternoon bright.

12th.—Cloudy, with sunshine and slight showers at intervals.

13th.—Very fine, bright, and warm.

14th.—Mild, slight showers; foggy at first.

15th.—Hazy early, afterwards fine and bright; few drops of rain 5.30 P.M.

16th.—Fair, but not very bright.

Nearly 10° warmer than last week, and considerably above the average; barometer steady, and rain slight.—G. J. SYMONS.



28th	TH	Royal Society at 4.30 P.M.
29th	F	Royal Institution at 8 P.M.
30th	S	
1st	SUN	2ND SUNDAY AFTER EASTER.
2nd	M	Brussels Horticultural Exhibition (1st to 3rd inst.)
3rd	TU	
4th	W	Society of Arts at 8 P.M.

### PEACH CULTIVATION UNDER GLASS.

**M**UCH has been written lately of the various methods adopted in the cultivation of the Peach under glass. The different systems of planting, pruning, and training have been freely discussed in the gardening papers: some writers preferring one method, and some others, as the case may be. The method of planting generally practised in large gardens where there is a great demand for fruit, is to plant so that the trees when trained will cover the entire roof of the house. In span-roofed houses the trees are planted close to the side walls, and in lean-to's close to the front wall, and trained in fan-shape to a trellis at a sufficient distance from the glass. I prefer this system of growing and training the Peach to all others, as the trees have the full advantage of being exposed to all the light and sunshine possible to ripen the fruit and wood. Having had considerable experience in the cultivation of the Peach, I venture to say that more fruit can be produced from trees planted in a house and trained on this system, and of better quality too, than can be produced from any other method of planting and training.

Good fruit may be grown both on cross trellises, back walls, and on the old-fashioned turned-over trellis in front of the house, but not with results equal to trees trained on a trellis close to the glass and properly managed. In proof of this assertion I might state that I planted a house here some six years since, a lean-to, 60 feet long, 14 feet wide, and 16 feet high, with a tree each of the following four varieties—Belle-garde, Royal George, Noblesse, and Barrington. The trees were young, clean, and vigorous, and had at the time of planting from three to five well-ripened shoots each of one year's growth. The shoots were left their full length, and tied to the trellis just as they came from the nursery. They started well, and by the end of the first year's growth they had more than trebled their number of well-ripened shoots, and in three years from the time of planting the trees covered the whole roof and finished-off a crop of no less than 112 dozen fine Peaches. I planted trees in another house some twelve years since, which came into full bearing four years after being planted, and have continued to bear heavy crops of the best quality ever since.

I grow the Peach on what is now called the extension system. Is the system really new to the majority of gardeners in this country? The name I admit is new to me, but not the system. I have not cut or shortened the point of a Peach shoot (as a rule) for more than twenty years. I do not, how-

ever, allow the laterals to grow any more than I do those of a Vine. They are stopped as soon as they appear, and never allowed to make much headway; and in this only does the system differ, as they are allowed to grow on what is called the extension system. As a matter of fact I can always get plenty of good shoots to fill the house without having recourse to the laterals. I make no claim of being the originator of the "new system," though I have practised it in a modified form (taking off the laterals), for more than twenty years. I could name several who have practised it for nearly fifty years, and yet it appears as a system but little known to gardeners in this country.

The last place I worked at as a young man, where the shoots were shortened or cut back to what was thought a treble bud and practised regularly, was Drumlanrig, and the first place I ever saw the shoots of a year's growth left entire at pruning time was practised at Stoke Farm near Slough by Mr. A. Simpson, and I am sure the system was not an original idea of his, at least he never said so. I have practised it ever since both in England and Scotland, and now, some twenty-three or twenty-four years after, I am amused to find it is comparatively new to many, and thought to be a new discovery by some.—A. PETTIGREW, *Castle Gardens, Cardiff*.

### BALSAM CULTURE.

My experience on this matter has been gained from a good practitioner of the old school of gardeners. His method was most successful; and although I live in a neighbourhood of good gardening, I have never seen Balsams like the magnificent specimens he produced twenty years ago. There is a great danger, especially among young gardeners, of despising plants which are cheap and which can be produced for a small outlay of labour and care. For this reason Balsams are grown by a few, and those few very often grow them badly. The expenditure of a shilling and the exercise of a little care will produce plants worthy to be staged in any conservatory. The first consideration is to procure good seed. If possible let the seed be English-saved, as foreign seed is often too cheap to be good. Any respectable seedsman will supply a packet of the best Balsam seed for 1s.

The compost in which the seed is to be sown should be somewhat similar to that used for Pelargoniums. Small pots should be employed half full of the compost, and two seeds should be sown in each pot. The pots should be placed in a gentle hotbed close to the glass, and when the seedlings appear the weaker in each pot should be drawn out and the stronger allowed to grow. When the seedlings are tall enough the pot should be filled to the rim, this encourages the young plants to form abundance of roots. The plants should be potted as soon as the roots are plentiful into the next size, say a 4-inch pot, still keeping them in the frame. They may be successively shifted on until they are in the pots in which they are to bloom, taking care at every potting that the soil is up to the seed leaves. If it is desired to have very large specimens the first flowers should be removed to encourage growth and the formation of side shoots. As the plants grow they must be taken from the frame.

The material used by my old friend in the later pottings was as follows:—Two barrowfuls of well-decayed manure and one barrowful of good loam thrown on to the floor, chopped and mixed with the spade. This material was used very



"lumpy," and never failed to produce luxuriantly growing specimens full of health and beauty. The Balsam delights in a moist heat and a very slight shade. When coming into bloom it will be benefited by copious supplies of liquid manure. The structure in which the Balsams to which I have referred were grown was a large vinery, and they succeeded admirably in their position. The seed may be sown now. Very fair decorative plants may be produced in eight weeks from the time of sowing seed. From this it will be seen how convenient it would be to sow seed so as to have a batch of plants to occupy the places vacated by the bedding plants. Few know what a large size pot the Balsam will take; as a matter of convenience, however, a pot 9 inches in diameter will be most suitable for flowering the plants in.—VINCE.

#### RAISING RHUBARB FROM SEED.

WHEN your correspondent "PRACTICALIST" informs the readers of the Journal that "raising new plants from seed is a better way of obtaining fresh stock for a new plantation than dividing the old roots," he must not expect all gardeners to agree with him. I know well how readily plants can be raised from seed, and with less trouble than by the mode described on page 288, but I do not know how it is possible from a purchased packet of seed to carry out the excellent principle of "only growing a good variety or two which always give most satisfaction," such as "St. Martin's and Albert." Will "PRACTICALIST" tell us how many plants of these varieties he has obtained from a packet of purchased seed, and how many that differed from them? True, he tells us that those who experience difficulty in obtaining pure seed should raise their own. But how much time will be lost in proving the purity of the seed? If there were any difficulty in increasing the stock of Rhubarb, of which satisfactory varieties are established, then the plan of raising plants from seeds might be adopted; but most gardeners, I think, can turn their glass structures to better account than by occupying space in the manner suggested. If your correspondent cannot grow good Rhubarb without having recourse to the elaborate practice that he has described he would not be considered a first-rate kitchen gardener by at least a large majority of cultivators and their employers. After having tried the system of raising Rhubarb from seed and seen it tried by others, I and they have fallen back on the "old lines," and we find we can really maintain a supply of the most satisfactory produce from a few superior varieties, which we contrive to keep distinct by dividing the crowns.

For the information of those who desire to grow Rhubarb from seed, and who have no suitable glass structures for raising the plants, it may perhaps be useful to state that good seed will germinate freely if sown like Parsnip seed in the open ground, but in May instead of in March. It also grows freely if sown as soon as gathered, forming small plants the same season, which the following year will be quite as fine as those "raised in heat and hardened off before planting," as if they were so many Castor-oil plants.—A PLAIN GARDENER.

#### ACHIMENES FROM CUTTINGS—WRITING TO THE PRESS.

MR. WM. TAYLOR'S remarks on page 269 lead me to say that I have for many years grown these plants from cuttings, and so have some of my gardening friends. The cuttings are inserted in pots three parts filled with soil, the top inch being nearly all sand, the bottom inch all manure, and the bulk a mixture of loam and manure. A square of glass is placed over each pot, which the tops of the cuttings nearly but not quite touch. A brisk temperature, regular moisture, and shade for a week are the chief essentials for success. I have found the cuttings strike readily in a Cucumber pit. As the plants are required in 6 and 7-inch pots the cuttings are inserted an inch apart in pots of that size, and after the plants have commenced growing freely a rich compost such as loam and dried cow manure or the refuse from a Mushroom bed is placed amongst them, a few of the lower leaves being removed so that it comes in contact with the stems. From these roots are emitted freely and the plants then grow rapidly. They are dwarfer than plants grown from tubers, and apparently more floriferous, and being grown in rich soil the flowers are as fine as can be desired. In lighter soil containing a large proportion of peat the plants grow rapidly in their early stages, but there is not sufficient sustaining power in it to produce luxuriant specimens with rich foliage and fine flowers for a long period. The finest plants I ever had were grown in a mixture of equal portions of

burnt clay and the remains of an old Mushroom bed; and I may add incidentally I never had Maidenhair Ferns, *Adiantum cucullatum*, and others so fine as when grown in that mixture. More care is required in watering Achimenes when they are grown in strong rich soil than in a lighter compost; but water being judiciously applied the plants enjoy this liberal fare.

For anything I know to the contrary Achimenes may have been grown from cuttings before I knew what a cutting was. Be this as it may, I found by an accident that the cuttings would strike readily enough; for some plants having been topped and the portions thrown on the tan in a Pine stove, some that were shaded rooted into the tan. The practice of growing the plants was not adopted for some time afterwards, and was then brought about by a more serious accident than the foregoing. The tubers of the stock were at rest in a place to which the frost found access, and all were killed. A dozen plants were bought in the spring, or rather a dozen varieties, for there were three small plants of each in each small pot. In due time the plants were topped and the cuttings struck, and by the autumn a far more satisfactory display was produced than if this mode of increase had not been adopted. I found, however, that the cuttings struck late did not produce such fine tubers as those from the original plants.

Mr. Taylor's remarks on writing to the press are timely. When I was a young man I hesitated long before venturing to send my remarks to that terrible man—an editor, and almost trembled at my temerity after my first missive was despatched; but I eventually found a great amount of human nature, even brotherly kindness, might centre in those erudite and to my then youthful mind mysterious individuals. From more than one of them I have since had encouragement which proved directly to my advantage, as my writings being accepted urged me to closer work and study, for I felt I had won a "position," and must not only maintain but improve it, and so became a better gardener and ready when an opportunity occurred to step from a small place to a large one.

My first communications were of course "spoiled" in my esteem by the editor who appeared to take out all the "best bits," all the smart hits, all the most laboured and elaborate sentences. For a time this editor was a perfect enigma to me. I could not understand it. I tried another, and yet a third, and they both did the same; at length as time rolled on it occurred to me that these inexorable censors could not "mutilate" my work from sheer wantonness, but must have some substantial reason for their practice. Eventually it began to dawn on me (I was getting older then), that they might be as good judges of writing as myself, and might even know better than me what it was prudent to admit and what to reject of my elaborate communications. I have long since been satisfied that such was undoubtedly the case, and I am sure they prevented the appearance of much of my youthful nonsense, false science (if there is such a thing), affected expressions, grandiloquent sentences, and "sly pokes" at something or somebody that it would not have been prudent to have published. In this respect I have no doubt escaped many a literary wiggling that I should have incurred, and thus, what I once thought cruel was in reality kind. I have found that editors protect young writers and do not expose their failings, and that what these gentlemen want from gardeners such as myself is plain practice and plain Saxon. I daresay they do not object to a "bit of science," but I do know that there are very few young gardeners able to take "safe flights" in this direction. Let them study science, but leave others of maturer years and with special attainments to expound it.

A gentle rebuke I received many years ago may perhaps be mentioned. Being engaged in planting Box edging I was impelled to write about it. Thinking the subject a very commonplace one I hunted up some particulars about the history of Box, its nature and components, and fancy I copied something from an old book, and so in my vanity made up a "fine article." A few days afterwards the bulk of my paper was returned to me, only a small portion being retained. I was favoured also with a short note as follows:—"You appear to understand Box planting, and no doubt your edgings are level, firm, and straight: others need such information as you are competent to give, and your notes on this subject will appear. The matter returned is in advance of the wants of our readers; place it in your desk for five years, then read it, and if you still think it can be usefully published send it to us again." I daresay the shrewd editor knew that in that time I should be ashamed of my work, and he would never see it again, and he was right.

Ever since then I have endeavoured to state plain facts and narrate simple experience in a manner that I hoped might be easily understood and prove useful, just as I wrote about planting Box edging about thirty years ago, and just as I have described

growing Achimenes from cuttings now; and as the first found acceptance so I assume will the last; and no doubt if the same matter had been sent by a young man of twenty who could scarcely curl his moustache, it would have been as readily printed as it will be from one who can remember when Buonaparte's name ("old Boney") was a terror to schoolboys, and one who has grown grey in the work of his life—gardening.—AN OLD HAND.

#### MR. WHITTAKER'S CUCUMBER HOUSE.

ONE of your correspondents desires information as to the motive Mr. Whittaker had in building his new house such a great length (197 yards) in preference to several smaller ones. Mr. Whittaker, while declining to enter into any controversy on the subject, informs me that he finds it much easier and cheaper to work in proportion than his smaller houses, although they probably are from 100 to 150 feet in length. I believe in the first instance it was built in its present form to utilise an existing wall and building materials in an economical manner. A tramway extends the whole length, on which runs an iron tank containing about a ton of water, which can be easily moved along, so that the watering or damping can be done very expeditiously, and the tank can be quickly filled at any of the eight wells in the house. It also provides an easy conveyance for soil, and the Cucumbers are when cut also easily removed. It is most peculiar to look down that great length, the trellises being covered to within 18 inches of the ridge with luxuriant growth, towards the bottom abundance of fine fruit ready for cutting, higher up the countless blossoms almost appear when looking down a sheet of yellow.

I daresay there are several points to which many cultivators would take exception; for instance, the entire absence of ventilators, also no vapour troughs are employed in any of the houses, and no laps in glazing; but the squares fit very true, and with the condensed moisture which will lodge between the edges of the glass the houses must be nearly airtight. I believe Mr. Whittaker ignores shading even in the brightest weather. These are points that may cause some speculation, but "nothing succeeds like success," and that Mr. Whittaker is a most successful Cucumber grower nobody can deny. Besides Cucumbers immense quantities of Mint and Rhubarb are well grown, with many thousands of plants in pots. I may add that the great house and most of the others are span-roofed, and most efficiently heated with Mee's saddle boilers with hollow bars, waterway back, and front plate. Two 6-foot boilers are employed for the large house.—J. J., Lancashire.

#### ROSE SHOW FIXTURES.

AS far as I have been able to ascertain, the following are the fixtures for Rose shows for the present season. There are others, such as Hereford and Oxford, of which I have not heard as yet.

June 28th .. .. .	Royal Horticultural Society.
June 29th .. .. .	Farningham.
June 30th .. .. .	Canterbury.
June 30th .. .. .	Farnham.
July 2nd .. .. .	National Rose Society, Crystal Palace.
July 4th .. .. .	Maidstone.
July 5th .. .. .	Reigate.
July 6th .. .. .	Cardiff.
July 7th .. .. .	Horsham.
July 7th .. .. .	Norwich.
July 8th and 9th .. .. .	Alexandra Palace.
July 9th .. .. .	Brockham.
July 14th .. .. .	National Rose Society, Sheffield.
July 15th .. .. .	Galloway.
July 16th .. .. .	Wirral.
July 17th .. .. .	Leek.
July 22nd .. .. .	Sutton Coldfield.
July 29th .. .. .	Helensburgh.

There is one of these fixtures to which I would wish to draw especial attention—that at the Alexandra Palace, which it will be seen is a two-days Show, and concerning which I received a letter from one of our oldest Rose-exhibitors pointing out the expense and inconvenience that it was, and asking me to endeavour to effect an alteration. I wrote to my friend Mr. Forsyth Johnson, the able Director of the flower shows, but I am sorry to say without effect. It therefore stands as the only case of a Rose Show *pur et simple* where the abomination of a second day's exhibition of dragged and forlorn Roses is to be seen; and I would draw the attention of such Rose-exhibitors as are members of the National Rose Society to the fact that when the Society was started one of its objects was expressly stated that it was to discountenance by every means in its power two-days Rose shows, as these were beginning to be the rule. We as a Society have all through steadily maintained our rule. We have had to fight a very hard fight in our provincial shows to maintain this principle, and surely the members of the Society will feel bound in honour to resist the

temptation to depart from what they have elsewhere maintained. If they give way to the temptation here it will be offering a bribe to other places to do the same, and we shall then be getting back to that from which we have delivered ourselves. I have suggested to the friend who wrote to me that a round robin should be signed by those who intend to be exhibitors that they will not exhibit if the two-days show is persisted in. If there are no exhibitors there can be no show, and the proprietors and managers are too shrewd to hold out if the expressed determination of the principal Rose-growers is made known to them. It will be necessary if this is done that there should be a very general concurrence, for if the thing be not well done it will be fruitless; but "a strong pull, a long pull, and a pull all together," and the attempt will be effectually quashed.—D., Deal.

#### HYACINTHS AND TULIPS IN HYDE PARK.

THE masses of Hyacinths, Tulips, &c., which extend from the Grosvenor Gate and the Marble Arch in Hyde Park, and which annually afford a beautiful display, are now at their best. A charming effect is produced by the large beds of red, white, and blue Hyacinths which are here so prettily grouped; and though the cold winds of the last few days have in some cases impaired their appearance, in no other public enclosure in the neighbourhood of London are these flowers cultivated with greater success than in this Park, and they cannot but give the utmost satisfaction to the public. Each of the beds contains only one variety, and the bulbs are planted about 9 inches apart. Among the varieties represented are, *Red*—Norma, Amy, and Robert Steiger. Of these the latter, of which there are several splendid beds, is far the most effective. Nothing could be more glowing and beautiful than are the beds of this well-known variety; it is a very bright crimson, and its dwarf sturdy growth and close compact spikes of bloom compare favourably with the thin and loose appearance presented by Norma. *Blue*—Charles Dickens, a fine variety, of which there are several good beds; Regulus, a dwarf pale blue, very largely grown there, and an excellent bedder; Blondin, a well-known variety, but not so attractive as Regulus, from which it differs in being less compact; Orondates, a compact Hyacinth of good colour and a very useful bedder. Uncle Tom and William I. are also represented, but compared with their lighter-coloured rivals they present a very poor appearance. *White*—Grand Vainqueur, large, pure white; one of the best varieties grown. It is represented in two or three beds, and presents some of the most effective massing in the entire group. Sturdy and compact, it contrasts finely with the glowing crimson of Robert Steiger and the bright blue of Charles Dickens. Mirandolina is also a pure white of excellent effect, and little inferior to Grand Vainqueur. Grandeur à Merveille, blush white, is very large; a well-known and useful variety, but scarcely so imposing as the two former. La Candeur is also grown, but is much inferior to the other whites, being rather small and thin. There are also one or two large beds of Sir E. Landseer, a very dwarf and effective Hyacinth of somewhat singular colour, being a deep coppery lilac. A good dark blue is wanting, and Baron Van Tuyl is suggested as an excellent bedder.

Among the Tulips are included beds of such well-known beautiful varieties as Rose Grisdelin, rose and white, a very pretty flower; Yellow Prince, a fine dwarf, rich yellow, of good effect; White Pottbakker and Comte de Mirabeau, whites—both good and attractive varieties, the former being exceptionally fine; Joost Van Vondel, crimson, a dwarf and pretty flower; Brutus, dwarf crimson; Keyzers Kroon, a well-known large and showy Tulip; Duchess of Austria; and doubles Tournesol and Gloria Solis. All the above are good bedding varieties, and planted 6 inches apart in large beds they have an exceedingly fine appearance. The bulbs employed there, also those in the Regent's, Victoria, and Battersea Parks, were, I am informed, supplied by Messrs. James Veitch & Sons, whose collections of Hyacinths exhibited at the spring shows of the Royal Horticultural and Royal Botanic Societies recently attracted such great attention.—P.

MARÉCHAL NIEL ROSE.—For some weeks I have been much interested with the letters that appeared in the Journal on the Maréchal Niel Rose on its own roots *versus* on Manetti or Briar stocks. Perhaps I may add my experience. In the autumn of 1878 I purchased a Maréchal Niel on its own roots from a cutting struck the same summer. It was planted in the centre of the greenhouse; it grew vigorously; and in the following spring had a good supply of flowers. During the summer the plant extended so much that I found it would prevent my attending properly to my Vines, so I replanted it against the back wall of the greenhouse, using for a compost good loam with a fair sprink-

ling of ground bones, old mortar, and a little soot. Last season it grew well but did not bloom. This year I have been cutting flowers for the last month, and shall have a good supply for some weeks. The plant is producing strong shoots, and after the flowering is past I shall cut it well back, and no doubt by the autumn it will have extended the full length of the wall.—AMATEUR, *North Lancashire.*

## THE EFFECTS OF ELECTRICITY ON VEGETATION.

(Continued from page 270.)

**VENTILATION.**—Many years back, and long before there were "greenhouses for the million," we were desirous of having erected a small plant house to serve as a greenhouse and conservatory, as well as a kind of porch to a south doorway opening from the hall into a small garden; but the difficulty was to find someone to undertake the construction who seemed equal to the occasion, and therefore information had to be sought from practical gardeners as to the requirements, and the only thing they all agreed in was that there must be "plenty of ventilation." Acting on this advice, in a small house (12 feet by 14) there were no less than eleven sashes hung for opening, so as to have the opportunity of trying all aspects and to almost any degree. This, however, was soon found to be all a mistake and worse than useless. Without enumerating all the failures, it will be sufficient to state that after innumerable trials a principle was hit on that has been working for many years with the most complete success. On reflection it will be seen that the air or wind never blows down vertically upon plants and trees, but that it always strikes at an angle sideways. Now any opening in the roof under the pretence of letting out the heated air is just what I hold it does not do, but it lets in a mass of cold air in an unnatural direction upon the plants. The only way in which the heated air can be let out in this position is by dividing the area of the opening midway, so that cold air may come down on one side of the partition and force up the hot air on the other side; but this does not obviate the former evil. In order, therefore, to fall in with Nature's arrangements a large sash was made to open immediately under the apex of the half-span roof at both ends, east and west, and these sashes were hung at the lower edge so as to open at the top outwards. By this provision the hot air would naturally escape immediately under the ridge of the roof, whilst the colder air would roll down over the inclined sash and thus acquire a slanting direction into the house, and at the same time be mollified by admixture with the warmer air met with in its passage downwards. The extent of ventilation will necessarily be regulated by the condition of the external surrounding atmosphere. What will do in one situation may fail in another, but this same principle of direction will apply in all. It has been observed that plants require to absorb moisture and carbonic acid from the atmosphere, hence it is essential that a due proportion of these should always be present. Surrounded by buildings, the dry walls rob the air of its moisture and impoverish its nutritive qualities, in this way rendering it unsuitable for ventilation; therefore an elevated point of admission is far preferable to others lower down, whilst the deficiency of moisture may be more easily made up by syringing below.

In the open country the surrounding vegetation keeps the air moist and genial, whilst the necessary carbonic acid is abundantly supplied by all fermenting and decaying organic matter. Now, as the air parts with its moisture, its oxygen, and its carbonic acid, and becomes exhausted, its removal to make room for a successive supply fully charged is one of the intentions of ventilation. In animal life this is provided for in a special direction; the expired air charged with warmth and moisture is thereby rendered lighter than the colder and drier air to be inhaled, and hence it ascends in the atmosphere immediately on escaping, and so leaves the fresh air uncontaminated below it. Not so, however, with plants; its removal and replacement can only be effected by the wind or motion of the air. It is desirable, too, that although rapidity of change may be advantageous, it is highly important to avoid all cold and cutting draughts.

In the Mushroom pit it is equally important that there should not be sufficient ventilation to disturb the negative stratum of air necessary for the fructification of the fungus. On the other hand, in the fruit room it is a consideration to obtain a free circulation of the positive atmosphere in order to dispel any negative stagnation overlying and enveloping the fruit that might induce mouldiness. In mildew one of the primary conditions is want of polar energy, which may arise from dryness or an unequal supply of moisture to the roots. In the case of pot plants standing on pans of wet cinder ashes will be found an excellent proceeding, whilst for Roses, &c., planted out drain pipes choked at the lower

end and sunk among their roots here and there and kept full of water in dry weather will prove serviceable feeders. In vineries and plant houses it is notorious that mildew occurs chiefly in the night, and that it is almost certain to occur in the autumn when roof windows are left open during the darkness; but with the upper end opening my own experience has shown that it rarely if ever occurs. It must, however, be observed that it is only the east window that is ever left "air on," and this has arisen entirely from direct experiment; but why this aspect in preference to any other, may seem a puzzling question. It must have been felt by the generality of practical men that extremely minute and subtle changes have great influence in promoting health or disease, and therefore they will necessarily be prepared for any announcement of the existence of apparently most insignificant matters provided as means to an end. Now, as the sun's rays have a very marked influence upon the atmosphere through which they pass, and upon the vegetation they impinge upon, the direction in which the rays fall will naturally be of no slight consequence, and hence the way they are met will of course be of some considerable importance, as we see by certain leaves always directing one particular surface sunwards. The apparent motion of the sun from east to west being caused by the real motion, or revolving of the earth on its own axis in the opposite direction—namely, from west to east, places the eastern or south-eastern side of a house in the position up to noon of meeting the advancing rays; but after that, when the sun has passed the meridian, the western and south-western side will be running away from the receding rays as they incline towards the setting in the western horizon. Hence, air admitted to a house or frame on the eastern side will be that which has received the latest benefit of the sun's rays; but it must not be confounded with the wind or air's current, as these are as perfectly distinct as the motion of a running stream from the wave motion upon its surface, and must be admitted through spaces proportioned to its intensity. A small house erected for containing a dozen Tea Roses had at first only an east window, but fancying more air might be advantageous a west window was introduced, and this was the commencement of the appearance of mildew. It was then closed and the plants sulphured, when the mildew disappeared and has never since reappeared, although the east window has been left open night and day up to the present frost. The same result has been obtained in the city conservatory; but whether peculiar circumstances may in either case have had influence, or whether the principle applies generally, remains to be proved, and which is well worthy of attention. Then, again, there is one other significant feature that has as yet never received attention—glass being an electric, which means that it is a non-conductor of electricity and hence acts as an insulator, and thereby separates electrically the confined air of a house or frame from the electricity of the atmosphere surrounding it, as well as itself becoming charged with electricity. These facts enlighten us as to the action of glass frames and other coverings hitherto unrecognised.—W. K. BRIDGMAN.

## A PLEA FOR ANNUALS.

ON a future occasion it is intended to direct attention to some of the best hardy herbaceous and alpine plants for garden decoration, but in the meantime the advisability of cultivating annuals more freely is strongly urged, special emphasis being laid on the word "cultivating," as in many instances these plants are not cultivated but starved. They are worthy of a better fate, as they produce shades of colour that are not obtainable in any other flowers.

We have frequently been told when arguing the claims of annuals "that the plants are very pretty while they last, but their flowering season is so brief that they are scarcely worth the trouble of growing them, especially as they leave the borders blank and dreary, besides causing them to present an untidy appearance when the plants are fading." These statements are to some extent true, but that they are so is not so much the fault of the annuals as of those who grow them. What would be said of a gardener who, to keep up a succession of any vegetable, say Peas, only made one sowing? He certainly would not be called a model kitchen gardener. What, then, can we say of those having flower borders which they wish to be kept gay with annuals who only make one sowing, and because the plants do not continue flowering throughout the season discard them altogether?

Annuals are charming additions to a flower border if a succession of sowings are made. Some kinds require to be sown in the autumn, as the spring-sown seeds do not produce such fine flowers, whilst many of the autumn-sown plants will survive and help to produce a brilliant display in early spring.



To prolong the time of flowering these plants should have every capsule removed immediately the flower fades or falls; this throws the strength of the plant into the remaining flowers and buds, and consequently the plant maintains its vigour to the last. If the successive sowings have been made judiciously no untidiness need be seen in the borders, as the second sowing will commence

flowering before the first is quite past, and thus the former can be removed without creating a blank or remaining sufficiently long to become untidy. It is impossible to make any rule respecting the sowing of annuals which shall be infallible, but species which will live through the winter should be sown from about the middle of August to the middle of October, according



Fig. 76.—AUTUMN-SOWN CLARKIA.

to the particular part of the country in which the reader may reside. These will commence blooming in March and April, when another sowing should be made as a succession crop, and again about the beginning of June for a third. How beautiful annuals are when sown in the autumn may be seen by the accompanying engraving of a spray of Clarkia (fig. 76) that was

cut from a plant now flowering in a pot in a greenhouse, and many others equally fine will shortly be flowering out of doors.

By the manner in which annuals are usually treated one would suppose these plants differ from all others, and require to be grown as closely together as possible; on the contrary, however, nothing can be more erroneous, as liberal thinning will speedily

convince any of your readers who have any doubts on the matter. Indeed if a score of plants have to live in a space only sufficient to maintain half a dozen, the result must be starvation. In sowing annuals, if the natural soil of the borders is either too heavy or too sandy, it is best to sow in pans or boxes and transplant into the borders in some prepared soil, which for most kinds should incline to the side of lightness, and at the same time be open and moderately rich. Of course the half-hardy kinds must have protection, and we know of nothing more suitable for this purpose than an ordinary dung frame, which should have lost its rank heat before the sowings are made. The young plants, however, should not long remain in this place, but be pricked out into pots and placed in a sheltered position where they may grow freely, but at the same time become strong and hardy before the time for planting outdoors, which under ordinary circumstances will be about the beginning of June, taking the place of some of the autumn-sown hardy kinds which will be now past their beauty. Those who have not the convenience for raising half-hardy annuals may usually purchase young plants for a small sum at the nearest nursery all ready for planting out; but it may be useful to remark that such popular kinds as Stocks, Asters, Marigolds, &c., if sown in very rich and light soil on a south border about the 1st of May, will produce sturdy plants that will produce as fine flowers, if a little later, as those raised in heat under glass, as all may prove who will try the plan fairly immediately after reading these notes.—H.

#### HELLEBORE AS A GRUB-DESTROYER, INCLUDING PHYLLOXERA.

THIS being the season when the destruction of grubs commences I wish more particularly to bring to notice the value of hellebore, and also to ask that gardeners would aid in experimenting with it. Hitherto I have never found the least injury done to plants by dipping them into a solution such as that mentioned on page 321, and it is certain death to all insects. For instance, "D., Deal," might dip his Auriculas; and, of much more weighty import, those with Vines affected by phylloxera might try this remedy. The French, I believe, offered a prize for the destruction of phylloxera; I suggest to them the above as a cheap remedy, and I firmly believe an effectual one. Fortunately I have had no phylloxera to experiment with, but in soil saturated with hellebore no insect can live, and yet plants are not injured.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street.*

#### A VISIT TO CHELSEA.

VARIOUS inducements exist to a visit to Chelsea. Chelsea buns, Chelsea china, and Chelsea Hospital have all their attractions. A melancholy interest will attach henceforth to a visit to the house of the Chelsea philosopher. My object was to visit "the Royal Exotic Nurseries." Having a friend high in office I was able to do so under very favourable circumstances, and advise all florists who have an opportunity to follow my example.

I was to some extent aware of the fame of Messrs. Veitch, but certainly not prepared to find a firm which pays away £10,000 in one year in wages. The statement of that sum alone will give an idea of the extent of their operations. Their agents appear to be in every part. Quite an interesting museum is springing up in one portion of the buildings containing the many objects of interest, besides the new and rare plants which are continually coming in to them. First impressions are imposing in finding oneself under glass in a grove of New Zealand Tree Ferns. Splendid specimens they are. "We do not care for them much under a hundred years old," said the "guide, philosopher, and friend" who was going round with me, Mr. Adolphus Kent, an old friend of now twenty years standing, and at one time the most successful of all Reigate Rose Association exhibitors. The glory of the place are, of course, its Orchid houses. There are 112 houses altogether, though I am thankful to say I did not enter half that number. It requires a tropical constitution for such tropical climates, though my companion rather enjoyed the atmosphere, and evidently pitied not a little my effeminate craving for fresh air occasionally. What the Orchids were is entirely out of my depth, but certainly the collection is equally extensive and magnificent.

The Pitcher-plants were also very interesting, and I was glad to find that the character of the insect-eating plants has been completely cleared. Mr. Kent holds that though a viscous fluid may detain flies in some instances, it is more than doubtful whether the plant partakes of them. "In fact we find," he said, "that if too many flies are caught by the leaves the plants get killed as well as the flies." On my way back—for I can detail but a very small part

of my experiences—I saw some beautiful Camellia houses, one especially capacious glass house being kept as the infirmary, to which the unfortunate plants which have been undergoing the rigours of a London season retire to recruit.

But whereabouts were the forced Roses? They were all away at South Kensington. Fortified with a pass from the obliging firm I followed them there, and had an early inspection of a very pleasing little exhibition. The Roses, principally from the firms of Veitch and of Lane, were not quite in full bloom, but looked very well and healthy. Beauty of Waltham, particularly good; also that excellent Rose of Mr. W. Paul, Magna Charta, which might have been called Magnum Bonum. That difficult Rose out of doors, Madame Lacharme, was excellent; a grand bush of Céline Forestier; Général Jacqueminot, as bright as ever; and Perfection de Montplaisir, a pale yellow, rather pleasing. A large collection of the various forms of Lent Lilies supplied a promise of the passing away of one more season of that "roaring month of Daffodils," which has this year invaded April and made so many remember him.—A. C.

I STROLLED in the other afternoon into Messrs. James Veitch's nursery at Chelsea; I was delighted with all I saw, and never remember to have seen so fine a collection of Orchids in bloom. I entered by the Old Brompton Road, and went through the glass houses in succession. In the entrance were some splendid Camellias, particularly one magnificent dark one of the colour of Louis Van Houtte Rose. The other house contained some splendid Azaleas and greenhouse Rhododendrons. Ericas also were very fine, and foliage plants in abundance. One house was full of that lovely plant so dear to brides and débutantes, the Gardenia. I was also fortunate enough to see the fine collection of Roses Mr. Veitch showed the day before at South Kensington. The finest bloom I saw was one of Marguerite St. Amand, but Countess of Oxford and other crimson Roses were very good. The rarely seen Mabel Morrison seems to do well as a pot Rose. This as seen at Chelsea is the purest white in colour of any Rose I know, it is in reality "paper white;" the plants were moderate sized, but very healthy and fairly bloomed. It is a great consolation to me, who have now no garden of my own, to know that during the next few months I shall be able to see the queen of flowers in her very best attire.

But after all I suppose at this season, and at a grand establishment like Messrs. Veitch's, the "Orchids" are after all not only the greatest attraction, but the flowers most prized. And really I was perfectly amazed not only at the number but also at the variety and the beauty of the flowers. I am not going to inflict upon your readers or upon your printer a string of long names, but I would recommend anyone who wishes to see what an Orchid really is to pay a visit to Chelsea during the next fortnight. Just as I was leaving I met the blest mortal who can call all that loveliness his own; he welcomed me, and expressed a hope that they might often see "WYLD SAVAGE," now no longer wild, and then hurried off, as he was starting that night for the bulb gardens of Holland.—WYLD SAVAGE.

#### THE NATIONAL AURICULA SOCIETY'S NORTHERN SHOW.

THIS Show was held in the Town Hall, Manchester, on the 26th inst. Generally the plants were poor, and seemed to have been pushed forward in order to have them in bloom. The pips were small, showing the effects of the long-continued cold weather. One of the best seedlings was a white-edged variety exhibited by Mr. T. Mellor of Ashton-under-Lyne, a seedling from Smiling Beauty crossed with John Simonite; the petals were rather pointed, but in other respects the flower was good. Alpines, with the exception of Mr. Pohlman's seedlings, were not first-rate. Polyanthuses were also far from being as good as in previous years. Mr. Barlow was as usual first with Fancy Auriculas, which were very fine. The twelve dissimilar Polyanthuses exhibited by Mr. H. Brownhill of Sale were also well grown. The following are the names of the chief exhibitors and the varieties best represented.

*Auriculas.*—Class A, six dissimilar varieties, Alpines excluded. First Mr. J. Booth, Failsworth, with Prince of Greens (the premier), George Lightbody, Alexander Meiklejohn, Lancashire Hero, Acme, and Charles J. Perry. Second Mr. B. Simonite, Rough Bank, Sheffield, with a seedling (green-edge) George Lightbody, Hero (grey), Mrs. Douglas, and Frank Simonite. Third Mr. Edward Pohlman, Halifax, with Alma, Catherina, Garibaldi, and Chas. J. Perry. Fourth Mr. Thomas Mellor, Ashton-under-Lyne; fifth S. Barlow, Esq.; sixth Wm. Bolton, Esq., Warrington; and seventh, Mr. Wm. Blackburn, Didsbury.

Class B, four dissimilar varieties, Alpines excluded.—First Mr. B. Simonite with Hero (green), a seedling; Mrs. Dodwell, Frank Simonite; second Mr. J. Booth with Acme, Marquis of Lorne, Alma,

Prince of Greens; third Mr. T. Mellor, Ashton-under-Lyne, with Ringleader, Reliance, a seedling green edge short of body, and a seedling self; fourth Mr. Edward Pohlman, fifth Mr. S. Barlow, and sixth Mr. William Bolton.

Class C, two dissimilar varieties.—First Mr. J. Booth with Acme and Dr. Horner; second Mr. E. Pohlman with a good seedling self and New Green (Headly); third Mr. W. Bolton with a seedling self and Alexander Meiklejohn; fourth Mr. S. Barlow; fifth Mr. J. Beswick, Middleton; sixth Mr. Thomas Mellor, and seventh Mr. B. Simonite.

Class D, pairs for maiden growers, dissimilar in class and variety.—First Mr. Edward Shepley, Middleton, with Rev. G. Jeans, Pizarro; second Mr. George Geggie, Waterloo Nursery, Bury, with General Niel and Mrs. Sturrock.

Alpines.—Class E, four dissimilar varieties.—First Mr. J. Beswick with Goliath of the Alps, Conspicua, Dolly Varden, and Diadem; second Mr. T. Mellor with Conspicua, Dazzle, Diadem, and Ovid; third Mr. S. Barlow with Brightness, Beatrice, Spangle, and Mercury; fourth Mr. E. Pohlman, fifth R. Gorton, Esq., sixth Mr. J. Booth, and seventh Mr. W. Brockbank.

Single Plants.—Class F, green edges.—First and third Mr. Booth with Colonel Taylor; second, fourth, and fifth Mr. B. Simonite with a seedling, Lovely Ann, and Talisman; sixth Mr. Mellor with No. 5 seedling; seventh and ninth Mr. Barlow with seedlings, and eighth Mr. Brockbank with Admiral Napier. Class G, grey edges.—First, second, third, fourth, and sixth Mr. Mellor with Ringleader, Confidence, General Bolivar, and John Waterston; fifth, seventh, and eighth Mr. Barlow with a seedling, C. E. Brown, and Complete; ninth Mr. Bolton with George Lightbody. Class H, white edges.—First, third, and sixth Mr. Mellor with seedlings and John Simonite; second and fifth Mr. Booth with Acme and Mrs. Headly; seventh Mr. Brockbank with Frank Simonite; eighth Mr. B. Simonite with R. Dean; and ninth Mr. Pohlman with Bright Venus. Class I, selfs.—First, fourth, and ninth Mr. Mellor with seedlings, second Mr. Pohlman with a seedling, third Mr. Shaw with C. J. Perry, fifth Mr. R. Gorton with Blackbird, sixth and eighth Mr. Booth with Ellen Lancaster and Marquis of Lorne. Class K, Alpines, single plants with yellow centres.—First, second, and fourth Mr. Pohlman with seedlings, third Mr. Beswick with Dazzle, fifth Mr. Shaw with Ovid, and sixth Mr. R. Gorton with Alexander Meiklejohn. Class L, Alpines, with white centres.—First Mr. Pohlman with a seedling, second Mr. Beswick with Conspicua, third Mr. Gorton with Beatrice, fourth Mr. Booth with a seedling, fifth and sixth Mr. Barlow with Little Annie and Elcho. The premier Auricula was Prince of Greens above noticed.

Polyanthuses.—Class M, black grounds, three dissimilar varieties.—First Mr. John Beswick with Congleton Queen, a seedling, and Lancashire Hero; second Mr. S. Barlow with President, Exile, and John Bright; third Mr. William Brockbank with Lancashire Hero, Exile, and Cheshire Favourite; fourth Mr. William Bolton, and fifth Mr. T. Mellor. Class N, red grounds, three dissimilar varieties.—First Mr. John Beswick with Lancer, George IV., and Unknown; second Mr. S. Barlow with Walsall Seedling, Firefly, and Sunrise; third Mr. Brockbank with Prince Regent, William IV., and George IV.; fourth Mr. William Bolton.

Class O, single plants, red grounds.—First, second, sixth, and seventh, Mr. Barlow, with Sunrise, Walsall Seedling, and Firefly; third Mr. Shipley with William IV.; fourth and eighth Mr. Beswick with George IV. and Unknown; fifth Mr. Geggie with Prince Regent. Class P, single plants, red grounds.—First Mr. Brownhill with Cheshire Favourite, second and third Mr. Beswick with Cheshire Favourite and Lancashire Hero; fourth, fifth, and sixth, Mr. Shipley with President, Exile, and F. D. Horner; seventh and eighth, Mr. Barlow with a seedling and John Bright.

Extra classes.—Class Q, for twelve dissimilar Fancy Auriculas.—First Mr. S. Barlow, second and third Mr. Wm. Bolton. Class R, for twelve dissimilar Fancy Polyanthuses.—First, second, and third Mr. H. Brownhill, Sale. Class S for twelve dissimilar Primroses.—First, second, and third Mr. Wm. Brockbank.

The miscellaneous collections of plants were particularly handsome, especially the Azaleas from Messrs. Jno. Standish & Co., whilst the blooms of Gardenias and Rose Niphetos were superb. Messrs. Robt. P. Kerr & Sons of Liverpool showed a fine collection of miscellaneous plants, and generally the stove and greenhouse plants were of good quality. Other exhibitors of miscellaneous groups were Mr. B. S. Williams, Upper Holloway, London; Messrs. Dickson, Brown, & Tait; and Mr. Brownhill of Sale.

#### EXHIBITING ROSES—WHAT IS AN AMATEUR?

A CORRESPONDENT on page 292 wishes the National Rose Society to define what an amateur is; but, as you say, there is no doubt that "an amateur is one who grows plants, but not for sale." I suppose your correspondent is alluding to the practice of some large amateur growers of Roses who dispose of their surplus stock by selling it. No doubt the practice is one to be discouraged, but I think the question is a very difficult one. For what are the great amateurs to do? Their ground after all is limited, and their plants are numbered by the thousand. Every year they are obliged, not only to buy new varieties, but to bud a large quantity

of stocks with old varieties. They find their ground quite full, when they every day expect their new lot to be delivered.

It is a question of getting rid of a few hundreds of old plants, and as the expenses of Rose-growing are very great they naturally wish to obtain a little money, so if they can find a purchaser they do; if not, they give them away. At the same time they are running a great risk in having their claim to the title of amateurs disputed. An instance of this is present to my mind as I write in a very flagrant case. But what was the end of it? A great nurseryman interfered very properly, and said the amateur was in reality a nurseryman, and could not show in the former's classes. The Committee endorsed this, and the result was that the amateur became a regular nurseryman, issued his catalogues, and is exactly like the rest of the trade.

But this was an exceptional case, and I do not think, so far as my experience goes, that at present the evil is great enough to cause the Committee of the National Rose Society any trouble. Perhaps your correspondent will go more into detail, when we shall be able to judge better of the matter.—WYLD SAVAGE.

#### SMALL FRUIT AND ITS PROFITS.

IN corroboration of Mr. Edward Luckhurst's article on fruit-growing for market (page 308), I venture to communicate the fact that 5d. per pound is what I have been in the habit for years of paying for Black Currants. Once only they were as low as 3d.; at all times they are scarce and little grown. Raspberries are 7d. a pint. Both these fruits we may say have semi-medicinal qualities, besides their value for kitchen and table. What can be more delicious as a temperance beverage than Raspberry vinegar, a tablespoonful in a half pint spring water? and as a preserve the Raspberry will retain all but its original aroma for two years.

But if "frost and cold winds" jeopardise the blooms of our fruit trees, much more do small birds ravage and destroy our bushes and canes; protection is almost impossible.—A. M. B.

#### REVIEW OF BOOK.

*Improved Pruning and Training of Fruit Trees, or Extension versus Restriction.* By JOHN SIMPSON. London: 37, Southampton Street, Covent Garden.

THE author of this small volume of 115 pages tells us that he "regards fruit culture from a purely utilitarian point of view," and he advocates what he calls the "extension" system of training. He abhors "fantastic methods of training, and the incessant prunings, pinchings, and root-prunings that these methods entail;" and he thinks, and most people will agree with him, that "a tree that can be grown in the shortest time and preserved in health and fertility the longest must surely be the best."

Years ago, before glass structures were so numerous and flowers in and out doors did not absorb the gardener's thought to anything like the extent they do now, more attention was given to fruit trees, and grand and fruitful specimens on walls were produced under a judicious system of pruning and training. We have as great an objection as the author has to stunted and distorted specimens; but we cannot ignore the value of pruning, nor do we like to contemplate the appearance of fruit trees grown in gardens if this "extension" system were solely and in many instances roughly (as must necessarily be the case), carried out. We readily admit that trees will form natural fruit spurs when the branches are not stopped, and we are aware that by injudicious pruning much fruit is sacrificed. With all this we have been familiar for years before Mr. Simpson appears to have made a special study of the matter; but we also know that "Nature's plan" if carried out in its integrity for a number of years will result in naked branches at the base, as all the orchard trees of matured age and all the forest trees that adorn the landscape show in the most conclusive manner.

More than thirty years ago we published the following brief instructions on the subject of pruning:—"After thinning out the shoots a little shortening of them must be attended to, at least whilst the tree is young and in the course of formation. Nevertheless, it must be remembered what is the object in view. Shortening contributes nothing to the health of the tree, nothing to its fruit-bearing properties. It is, in fact, an adjunct of a dwarfing system, being an attempt to limit the ultimate size of trees, in order to prevent them in gardens from attaining an orchard size and character;" and even when it was for a special purpose found necessary to "limit the size" of trees by shortening the branches a slight pruning of the roots was at the same time advocated. Again, in referring to the principles of pruning we have recorded that "thinning-out the growths is necessary, in order to admit or equalise the amount of light and air to the bearing wood,



and for the sake of increasing the size and quality of the fruit. Shortening, or pruning back the shoots, is practised for two principal reasons—the one to increase the number of shoots, and the other to cause the tree to produce abundance of side spurs. It must not, however, be inferred that any kind of pruning will of necessity render a tree more fruitful than if left in a state of nature. Pruning is altogether an artificial procedure, and becomes necessary principally through limitation of space. Nature has her own peculiar modes of pruning, if such they may be termed, and that is by suffocation, and by the continual tendency of the ascending or extending branches to weaken and finally to starve out the lower branches." This must inevitably be the result with such a tree as the one represented on page 23 of the book if the tree is left to Nature; indeed, the engraving from a photograph shows that the branches which formed the whole of the tree when it was planted three years ago, and which then had a number of buds, are now practically destitute of growths; and in proportion as the branches are allowed to extend without being shortened, in the same proportion will their nakedness increase towards the base, and in the course of time the centre of the tree would be destitute of foliage and of course of fruit, if the extremities were not checked, as they must be under glass, and "Nature's plan" (extension) then ceases.

A period of three years is quite inadequate for testing the system advocated, and it would have been well if the author had published a photograph of the tree that he planted (presumably under glass) in 1866. If that tree exists now it is yet comparatively young, and ought to be in its best condition. "Nature's plan," is very good when it is carried out in a natural manner; but fruit-tree culture under glass is fundamentally artificial, and the management must consequently be adapted and subordinated to the artificial conditions of the case. We admit readily that by no other means than those advocated by the author, and practised by many cultivators, could so much fruit have been obtained from a Peach tree in such a limited time; and we have not the slightest objection to those who prefer this plan carrying it out, and they will obtain abundance of Peaches in a few years; but the ultimate results of "Nature's plan" must be what we have stated.

There is much sound advice and excellent teaching in the book on thinning the shoots of fruit trees and other details of culture, and we have nothing to say against the good old system recommended as applied to orchard trees, nor, with certain modifications, to pyramids that have space to grow to a large size—indeed some of the finest pyramid Pears that we are acquainted with have for years received little or no pruning; but such trees do not meet the wants of all, and dwarf trees are and will be grown by many. That many of these are too dwarf and crippled—are, indeed, mere pomological toys—we admit, and that pruning is often most injudiciously performed is a fact we deplore; but this is not sufficient to induce us to relinquish a practice that when rightly carried out is undoubtedly beneficial. We do not believe that pinching the summer growths for the production of fruit is a delusion, and we do not hesitate saying that those who in their own practice have found it so have not carried out the system properly, or have applied it to trees that needed no such aid; but we do know that the finest fruit that has been produced in England has been obtained from trees that have been pinched and pruned in a skilful and systematic manner, and we also know that the most successful fruit-growers in France and America prune their trees intelligently and judiciously, and that pruning is advocated by those who grow fruit for commercial purposes.

There is much in the chapter on Vines that many gardeners will not accept and practise. For ourselves we do not think the system of Grape culture that has been pursued for many years by the leading cultivators is radically wrong, or the Grapes grown in British gardens would not be what they are—the best that are produced in Europe. If the plan advocated in the book under notice were adopted in every vinery in the kingdom, would better crops and finer Grapes be obtained than have been produced during the last twenty years? We ask the question, which is a pertinent one, and leave others to answer it.

We have dwelt at length on the subject of this small volume because it is a subject of great importance treated by a gardener of ability and experience. We believe the majority of readers will find much that they will approve in its pages, much from which they will dissent, and some things that they will not understand.

If a second edition is called for the author will doubtless correct the mistake he made in referring to a portrait of a tree in the *Florist*, but which was borrowed by that paper from the *Gardener's Magazine* and properly acknowledged. The information which has been supplied to the author on the lists of fruits is not quite satisfactory, while some of the names are

spelled incorrectly, as also, curiously enough, is the name in every instance in which it is mentioned of Mr. Coleman of Eastnor Castle. These are blemishes that might have been avoided by careful editorial revision. The illustrations are very inferior as works of art.

#### CAULIFLOWERS AND BROCCOLIS.

I BEG to add to the answer made to "G. O. S.," on page 268, that any Cauliflower might bear the name of Broccoli which would stand the winter without being injured by frost. Any Cauliflowers from seed sown in September, especially in England, may stand the bad season and thus become a Broccoli if the weather is mild, and especially if the head is not too strong when the first frosts occur. Likewise even the most hardy Broccolis are subject to freezing when the winter is severe. In France, and in regard to the time of sowing, Broccoli has no other signification than "Winter-Cauliflower." We readily class the Walcheren under the Cauliflowers, but to us Walcheren Cauliflower and Walcheren Broccoli are identical. It bears both those names, as it may as well be sown in March or in September, but then it stands the winter better than any Cauliflower.—H. MARTIN, *Paris*.

[The only certain mode of preserving plants of the Walcheren variety through the winter in England is by protecting them with glass. Plants raised from seed sown in spring produce heads in August; the variety is therefore known as a Cauliflower. Varieties of which Wilcove is the type cannot be made to do so; they are hence known as Broccoli, and are distinctly more hardy than Cauliflowers. On no practical grounds can Walcheren Cauliflower be placed in comparison as to hardiness with Wilcove Broccoli.—ED.]



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Major Mason in the chair, the following candidates were duly elected Fellows—viz., James M. Alexander, G. W. Allen, Mrs. Edwin Arnold, Edward Banbury, Miss Blayden, Frederic J. Cornwell, Edward Fenner, Mrs. Hill, Sir Louis Jackson, Mrs. J. Leach, T. H. Stanton, Mrs. George N. Todd, William Wright.

— WE are requested to state that the Council of the ROYAL HORTICULTURAL SOCIETY, having procured a quantity of corms of Gladioli, are now distributing the same in packets to the Fellows on application at the Secretary's office, South Kensington; 3½d. in stamps should accompany each application if required to be sent by post.

— WE have had many references to the COLD WEATHER that has prevailed during the past week. A Sussex correspondent states that he found ice last Thursday morning half an inch thick, and similar accounts have reached us from other places. As yet, however, we trust that little or no injury has resulted to the fruit trees, as fortunately the blossom is late owing to the very low temperature that has generally prevailed during the present spring.

— MR. J. WITHERSPOON writes as follows upon EXHIBITORS' GRIEVANCES—"Mr. Ferguson's request being already attended to renders further attention to the same subject unnecessary, but the requirements of schedules and their being habitually disregarded I think needs again being brought forward. For Grapes the Edinburgh schedule stipulates that stands must not exceed 6 inches in height at the back, which is much too low to carry Grapes a distance, but I understand that the judges never notice this stipulation. Some day an exhibitor will enter a protest, and then perhaps the rule will be altered. Last year I wrote to inquire if any guarantee would be given against disqualification, but I was answered by the receipt of a schedule, and I stayed

at home. Have exhibitors not a right to ask that all such foolish restrictions be done away with?"

— A SPRING Exhibition was held by the ROYAL HORTICULTURAL SOCIETY OF IRELAND last Thursday, and it is stated to have proved very successful both in the number and quality of the exhibits and the attendance of visitors. Azalcas, though not numerous, were represented by some fine specimens, the chief prizetakers being the Rev. F. Tymons, with Messrs. Westby and G. Orr Wilson. Palms were well shown from the gardens of Lord Justice Deasy and Mr. G. Orr Wilson, the last-named exhibitor with Mr. Westby contributing a pretty display of stove and greenhouse plants. The Rev. F. Tymons and Mr. R. Pim staged the best examples of Roses in pots, and cut Rose blooms. Hyacinths formed a strong feature, some being very fine, especially those from Lord Justice Fitzgibbon and Messrs. Wilson and H. J. Jury. Many other plants, with a few dishes of Apples and Pears, served to constitute a very satisfactory Show.

— THE BULB BEDS AT DUNEEVAN were never more worthy of notice than they are now. Some twenty beds of Hyacinths, in which nearly six thousand bulbs were planted of the best bedding varieties in mixture, one-third being double, produce a charming and imposing effect. Each plant is supported with a galvanised wire stake, than which nothing can be more suitable, and hundreds of spikes are of exhibition quality. The beds are margined with Crocuses, the foliage of which forms an elegant green fringe to the masses of stately flowers which it encircles. The Hyacinths are about 8 inches apart, and one round bed contains a thousand plants, scarcely one having failed. The intermixture of double flowers imparts a more massive appearance to the beds than if single varieties alone had been planted. The Tulip beds are similarly fine. Mr. McIntosh has proved La Belle Alliance to be the richest and best scarlet bedder of all, and has superseded Vermilion Brilliant; the blooms are very large, colour intense, and foliage fine. Chrysolora has proved the best yellow for beds, the flowers being singularly clean and without spot or blemish. Molière, a fine purplish flower with orange base, makes a striking bed, the more so as the orange colour shines through the base of each flower like the reflection from an enclosed lamp; and Wouwerman, a glowing plum colour, forms a mass of great richness. The bulbs were planted 6 inches apart, and as there are practically no blanks the effect produced is as satisfactory as could be desired. The varieties named may well be kept in mind by those contemplating having fine beds of Tulips another year. Only newly imported bulbs of both Hyacinths and Tulips were employed, a few planted a second year being poor in comparison.

— MESSRS. JAMES CARTER & Co. have sent us a box of CINERARIA FLOWERS in twenty varieties grown in their nursery at Perry Hill. They are large and good in form and substance, the selfs being rich and varied in colour, and the particoloured blooms clear and well defined. Well-grown plants of such varieties as those before us would be valuable for decorative and exhibition purposes.

— THE American "Gardeners' Monthly" gives the following note on VITIS CALIFORNICA AS A STOCK AGAINST PHYLLOXERA:—Professor Eugene W. Hilyard says, "Among the resistant stocks most readily available to California Grape-growers, the native wild Grape, Vitis Californica, deserves earnest attention. In its botanical character it stands near the wild species, from which the Clinton and Taylor are derived; and while it does not seem to harbour naturally either variety of the Phylloxera, experiments made by planting it among infested Vines seem to show that, although some insects will migrate and attach themselves to its roots, it does not suffer in any sensible degree from this attack. It should be understood that under similar circumstances the

roots of the Clinton and Taylor are also visited by the insect, but without injuring vitality."

— THE *Reading Observer* states that on Wednesday, the 20th inst., the MARRIAGE OF MR. ARTHUR WARWICK SUTTON, third son of Mr. Martin Hope Sutton of Cintra Lodge, Reading, with Miss Arabella Constance Pym, second daughter of the late Rev. Edward Gambier Pym, M.A., Rector of Willian, Herts, and grand-daughter of Robert Baxter, Esq., of Westminster, took place at Christ Church, Westminster. After the ceremony, the wedding breakfast was served at Mr. Robert Baxter's residence, the guests assembled numbering about forty. Later in the day Mr. and Mrs. A. W. Sutton left for the continent, their destination being the Italian Lakes. There were over a hundred presents, including a very handsome silver tea and coffee service presented by the employes of the firm, a marble clock from the members of the Mildmay Club, a pair of vases from the Grovelands Club, a pair of etagères from the Abbey Hall Choir, a silver bowl from Lord and Lady Kinnaird, a pair of vases from Sir Henry and Lady Every, and a silver bracelet from Lady Anne Campbell, besides many costly and very beautiful presents from other relatives and dependants of the two families. In the evening the whole of those employed by the firm were entertained at the dinner in the Reading establishment.

— A CORRESPONDENT writes to us respecting A NEW VINE DISTRICT—"A Queensland paper, published in the western farming country, has the following account of a new agricultural neighbourhood opening up some three or four hundred miles from the seacoast, and long thought too distant for farms. The railway, however, now connects it with the port of Brisbane. The Roma fruit region is described. 'Mr. Bassett,' says the writer, 'is now reaping the fruit from his vineyard, which covers over twenty acres of ground, and contains 22,000 Vines, all bearing and looking as healthy as it is possible for them to look. The names by which the Grapes are generally known are—the black ones: Black Prince, Black Cluster, and Black Wine Grapes; white ones: Sweetwater, White Table Grape, and White Wine Grape. The Black Prince is a beautiful large Grape of an oblong shape, the largest grown in this district; it has a pleasant taste, and produces a very good wine. Of the white Grapes the White Wine Grape is the best. A stranger to the vineyard would probably take this Grape to be diseased, as it is slightly speckled with brown, which is, of course, its nature. It is a good yielding Grape, and produces a very good wine.' We are further told by the reporter that Mr. Bassett was putting in 15,000 more Vines at Roma Villa, and has a large press for the crushing season."

#### ROYAL HORTICULTURAL SOCIETY.

APRIL 26TH.

ROSES unquestionably constituted the most generally attractive feature of this meeting, though there were many other exhibits of excellent quality and interest. Altogether the meeting would bear very favourable comparison with any other held at this time of year.

FRUIT COMMITTEE.—Major Mason in the chair. There were only three exhibits, so the work of the Committee was very light. Mr. Lyon, gardener to Sir E. H. Scott, Bart., Sundridge Park, Bromley, sent a dish of Keens' Seedling Strawberry, very well ripened and of good colour. A cultural commendation was awarded, and also to each of the following—to Mr. Burnett, gardener to Mrs. Hope, Deepdene, Dorking, for several fine Paris Market Lettuces; and to Mr. J. Sutton, gardener to W. J. Cookson, Esq., Worksop Manor, Notts, for pods of Vanilla, finely ripened, and each 6 to 8 inches long.

FLORAL COMMITTEE.—Dr. Denny in the chair. The chief plant of interest among those staged in the Council-room was contributed by the Hon. and Rev. J. T. Boscawen of Lamorran, Probus, Cornwall, who sent a magnificent specimen of *Cattleya Skinneri*. Such has rarely been exhibited before. It was in a 10-inch pot, and had thirteen spikes, each with nine or ten flowers of the lovely soft purple tint peculiar to the species. The plant was in excellent health, the foliage firm and vigorous. A cultural commendation and a silver Flora medal were deservedly awarded to Mr. Boscawen for this handsome specimen. Messrs. James Veitch & Son, Chelsea,

exhibited several new plants, including two pretty Caladiums; one named Pyrrhus with large red and green leaves, and the other Princess Beatrice with yellowish green leaves and pink centre. Croton sinizianus had long narrow pendulous leaves regularly marked with green and yellow. Many other attractive plants were also shown and certificated. Mr. H. Cannell, Swanley, Kent, exhibited a collection of Laced Polyanthus from his own strain of seed, the flowers being generally of good form, and of dark ground colour with neat bright yellow lacing. A variety named Queen of Hose-in-Hose was shown with pretty hose-in-hose flowers. Plants of Chrysanthemum frutescens grandiflora were sent bearing a profusion of their large white flowers. Flowers of the deep scarlet Zonal Pelargonium Henry Jacoby, and a Tropæolum named T. canariense Improved, were also noteworthy. Messrs. Fisher, Son, & Sibray, Handsworth Nursery, Sheffield, exhibited a specimen of Rhododendron Lady Alice Fitzwilliam, with plants of R. magnificum, R. Princess Alice, R. Fragrantissimum, and R. Sesterianum for comparison. The first-named was in excellent condition, and was accorded a certificate. Mr. R. T. Veitch of Exeter sent a very handsome specimen of Rhododendron exoniensis about 4 feet across, and bearing a profusion of white fragrant flowers. Messrs. H. Lane & Son, Great Berkhamstead, sent plants of Deutzia gracilis variegata, distinguished by its small leaves being variegated with white. A vote of thanks was accorded to Messrs. J. Carter & Co., High Holborn, for a branch of Clanthus Dampieri bearing four extremely fine trusses of flowers. It was stated to have been cut from a plant with over one hundred trusses of blooms. The same firm sent a pan of a neat double red Daisy named Rob Roy, and a basket of the pretty variegated Forget-me-not, Myosotis elegantissima. Mr. R. Dean, Ranelagh Road, Ealing, exhibited a collection of Polyanthus and Auriculas, including several for which certificates were awarded. Specimens of the pretty herbaceous plant Epimedium rubrum were sent from the Society's garden at Chiswick, and Messrs. Heath & Son of Cheltenham sent a plant of a yellow Tree Carnation named Dr. Abercrombie, with flowers of good size and freely produced.

In the conservatory was a very handsome display, Roses predominating; the Rhododendrons and miscellaneous groups also contributing much to the general effect. Messrs. James Veitch & Sons exhibited extremely beautiful groups of standard Roses, with a margin of Acer polymorphum laciniatum, and flanked on each side by dwarf well-flowered specimens of Clematises, producing a charming effect. The Roses were in excellent condition, some in 10-inch pots bearing over two dozen flowers and buds. A gold medal was awarded. Messrs. Paul & Son, Cheshunt, obtained a similar award for a collection of about a dozen large specimen Roses, with a number of smaller ones, all in excellent condition. Among those particularly fine were Cheshunt Hybrid, Madame Victor Verdier, Beauty of Waltham, and Annie Laxton. In front of the stage were four baskets of Maréchal Niel Rose blooms, uncommonly large and of great substance. Messrs. Lane & Son, Great Berkhamstead, also secured a gold medal for two fine groups of Rhododendrons at one end of the conservatory, comprising over fifty large plants flowering very profusely, and representing numerous good varieties. From the same firm a group of Roses in pots was contributed, most of the specimens being fresh, healthy, and bearing good flowers.

Messrs. Osborn & Sons, Fulham, exhibited a pretty group of choice hardy and herbaceous plants, among which a basket of the variegated Heracleum Frederici was noticeable for its large deeply divided white-streaked leaves. Muscari Szovitzianum had neat spikes of dark blue flowers, and a pan of Trillium grandiflorum was also noteworthy, the pure white flowers being of great size. Messrs. Barr & Sugden had their handsome collection of Narcissi flowers. Mr. J. Aldous, Gloucester Road, staged a tasteful group of plants, chiefly comprising dark blue Cinerarias, Spiræas, white Azaleas, Lilies of the Valley, Chrysanthemum frutescens, Deutzias, Palms, Ferns, and variegated Maple, for which a silver Banksian medal was awarded, and a fine group of Cinerarias, Azaleas, and Wallflowers was contributed from the Society's garden.

First-class certificates were awarded to the following plants:—

*Davallia elegans polydactylon* (Veitch).—A distinct and handsome species, with bipinnate fronds about 2 feet long and a foot broad at the base; the pinnules are regularly cut at the margin, and bright deep glossy green; the apex of the frond being slightly crested.

*Asparagus tenuissimus* (Veitch).—A charmingly elegant species with extremely fine hair-like divisions of the leaves, similar to several other forms of Asparagus.

*Aralia Kerchoveana* (Veitch).—A very fine and distinct species, with palmate leaves, the largest of the divisions about 5 inches in length and the shortest 2 inches, lanceolate in form, deeply and coarsely serrated at the margin.

*Goniophlebium lachnopus* (Veitch).—Fronds 1 to 1½ foot in length, pinnate, and suggestive of a Nephrolepis; the pinnæ 1½ inch long, narrow, and with a slight glaucous tint.

*Rhododendron Lady Alice Fitzwilliam* (Fisher, Son, & Sibray).—One of the Princess Alice type, with dark green elliptical leaves 2 inches long and 1 broad; the flowers 4 inches across, white with a few pink streaks, very fragrant, and borne in terminal heads of three or four. A very beautiful variety, and apparently free in flowering.

*Kerria japonica major*.—A first-class certificate was awarded to J. McIntosh, Esq., Duneevan, Oatlands Park, Weybridge, for this plant,

of which flowering sprays were exhibited. The flowers were very full, bright yellow, and more than 2½ inches in diameter. The finest double form of this well-known plant that we have seen.

*Megasea cordifolia purpurea*.—Mr. R. Parker of Tooting obtained a first-class certificate for a fine specimen of this plant with large cymes of soft rosy purple flowers of good shape. The leaves are thick and rounded in form. It is well suited for culture in borders or pots.

*Erythronium giganteum*.—G. F. Wilson, Esq., Weybridge, sent flowers of this plant, which he stated in a note appended to be "distinct from E. grandiflorum, having only one flower to the stem, the flower being also of different shape, colour, and marking." The flowers were about 2½ inches in diameter, with narrow white petals and a central ring of yellow and red at the base.

*Cineraria Marched Past* (Cannell).—Flowers of great size and substance, exceeding 2 inches in diameter, rich crimson, with a narrow band of white near the centre. It appeared to be compact in habit, and is certainly a fine variety.

*Polyanthus Queen of Hose-in-Hose* (Cannell).—A second-class certificate was awarded for this variety as a border plant. It is very free in habit, and no doubt would prove very useful for the purpose named. The ground colour is deep red.

*Odontoglossum Alexandræ Regine* (Heims).—A beautiful variety with large flowers, the sepals and petals marked with large reddish-brown spots.

*Odontoglossum Ruckerianum* (Heims).—Also a fine Orchid, the white sepals and petals tinged with purple, and thickly dotted with small reddish spots.

*Auricula purpurea* (Dean).—A large double purple self of good form. This and the two following were certificated as decorative varieties.

*Auricula Splendour* (Dean).—A pretty deep crimson self with large flowers.

*Auricula Mrs. Moore* (Dean).—A laced Alpine variety with a pale yellow eye, deep purple body colour shading to a nearly white edge.

*Miles' Hybrid Spiral Mignonette* (Lyon).—Several pots of this excellent variety were shown by Mr. Lyon of Sundridge Park. The plants were extremely vigorous yet compact, with spikes of closely packed flowers 4 to 6 inches long. This variety has been frequently exhibited by the raiser in even better condition than on this occasion, notably in 1878; and it is curious that it was not certificated before.

SCIENTIFIC COMMITTEE.—*Potato Disease*.—Dr. Masters read extracts from a manuscript on this subject (the author's name being withheld). The chief point being that the writer imagines Bacterea or Englaena to give rise to the fungus Phytophthora infestans. He placed on a patch of cooked Potatoes some fluid containing Englaena, and after keeping it at a temperature of 60° to 70° Fahr. some fungus appeared in seven days, and after a fortnight the Phytophthora was developed.

*Sarracenia*.—Mr. W. G. Smith observed that the petals are usually pendulous; but on placing cut blossoms in a saturated atmosphere they became spreading and saucer-like. It was suggested that this was due to turgidity after having absorbed moisture.

*Rhododendrons*.—The Hon. Mr. Boscawen exhibited several trusses of seedlings, as also cut blossoms from R. Thompsoni and R. campylocarpum which had withstood 9° of frost. He also exhibited a branch of Andromeda formosa which was perfectly hardy, and which rabbits refused to eat, while it was poisonous to goats. He also exhibited a double wild Primrose.

*Scilla italica*.—Mr. Harpur Crewe exhibited a white variety of this flower from Mentone.

*Clanthus Dampieri*.—Messrs. James Carter & Co. forwarded a fine spray of this beautiful Australian Leguminous plant, for which a vote of thanks had been accorded by the Floral Committee.

*Violet Diseased by Puccinia Viola*.—Specimens were forwarded by Mr. C. M. Owen from Gorey, Ireland. The fungus was in a very incipient stage.

Books presented to the Lindley library: "Epitome of Gardening," by Moore and Masters; "Guide to the Literature of Botany," by B. D. Jackson.

LECTURE.—A *propos* of a group of Maples from Japan exhibited by Messrs. Veitch, the Rev. G. Henslow made some remarks upon the affinities of the existing Japanese and South United States floras with that of the ancient Miocene period in Europe. He observed that of the extinct Swiss tertiary flora and of the existing Japanese flora there are seventy-one natural orders or families in common. Fifty-one are represented by identical genera, but probably no species is now extant of that early period. The following orders and genera are characteristic of both the Swiss Miocene and modern Japan. Coniferae, Leguminosae, Lauraceae, Aceraceae, Rhamnaceae, Juglandaceae, Moraceae, Proteaceae, and Palmæ; Quercus, Salix, Ficus, Liquidambar, Myrica, and Ulmus. With the existing North American flora the old Swiss Miocene had even more in common than the Japanese. There are eighty-eight genera of seventy-three orders, which are represented both in Switzerland and the S.U.S. floras. The groups which especially characterise the U.S. forest vegetation are Taxodium, Magnolia, Liriodendron, Hickories, Walnuts, Planera, Maples, Negundo, and Oaks. About three hundred genera are common to the S. States and Japan, while the eastern side more nearly corresponds to the old world vegetation than the western side of N. America. A similar flora formerly extended throughout the Arctic



regions, as *Taxodium*, *Thuja*, *Chestnuts*, *Oaks*, *Walnuts*, a *Magnolia*, and a *Plum* had been found fossil in *Greenland*, *Maple* and *Tulip Tree* in *Iceland*, and forests of deciduous trees seem to have flourished where land is now perpetually icebound.

With regard to the origin of this similarity Dr. Unger considers the emigration to have taken place from America to Europe. He thinks the living flora of the eastern States of North America is the lineal descendant of that which gave rise by aid of "Atlantis," a supposed submerged land, which is thought to have connected Europe with America, to the Swiss Miocene flora. Sir C. Lyell thought the route taken was the longer one round by Japan and not by Atlantis; but still from America to Europe. Instead, however, of regarding either Switzerland or the South United States as the origin, there remains the theory of Professor A. Gray, that as the Miocene flora appears to have been uniformly spread over the whole of the regions bordering the Arctic circle, so, when the northern climates became cooler in the next or Pliocene age, this flora was driven southward along every meridian, its descendants now existing in the localities above mentioned. These now form a belt, roughly speaking, between the 30th and 40th parallels of latitude. Migration to some extent might have

taken place along that belt, but the greatest migration was probably from north to south.

The lecturer next called attention to the collection of *Clematis* exhibited by Messrs. Veitch, pointing out its connection with the Buttercups by means of *Anemone*. He alluded to the calyx being coloured and so superseding the necessity of a corolla, though this was present in the sub-genus *Atragene*. He described the European forms introduced in the sixteenth century and the splendid Japanese kinds imported within the last fifty years which have supplied the innumerable existing handsome sorts. The method of climbing by means of the petioles or leaf-stalks, which are sensitive to touch, formed the subject of some remarks. A fine specimen of *Cineraria* from Mr. Cannell's, which was named "Marched Past" was shown, as well as a branch from the old original *C. cruenta*, for comparison, which well showed what the florist's skill had accomplished.

#### DENDROBIUMS.

ORCHIDS are now represented in the gardens of this country by considerably over a thousand species and distinct varieties, of

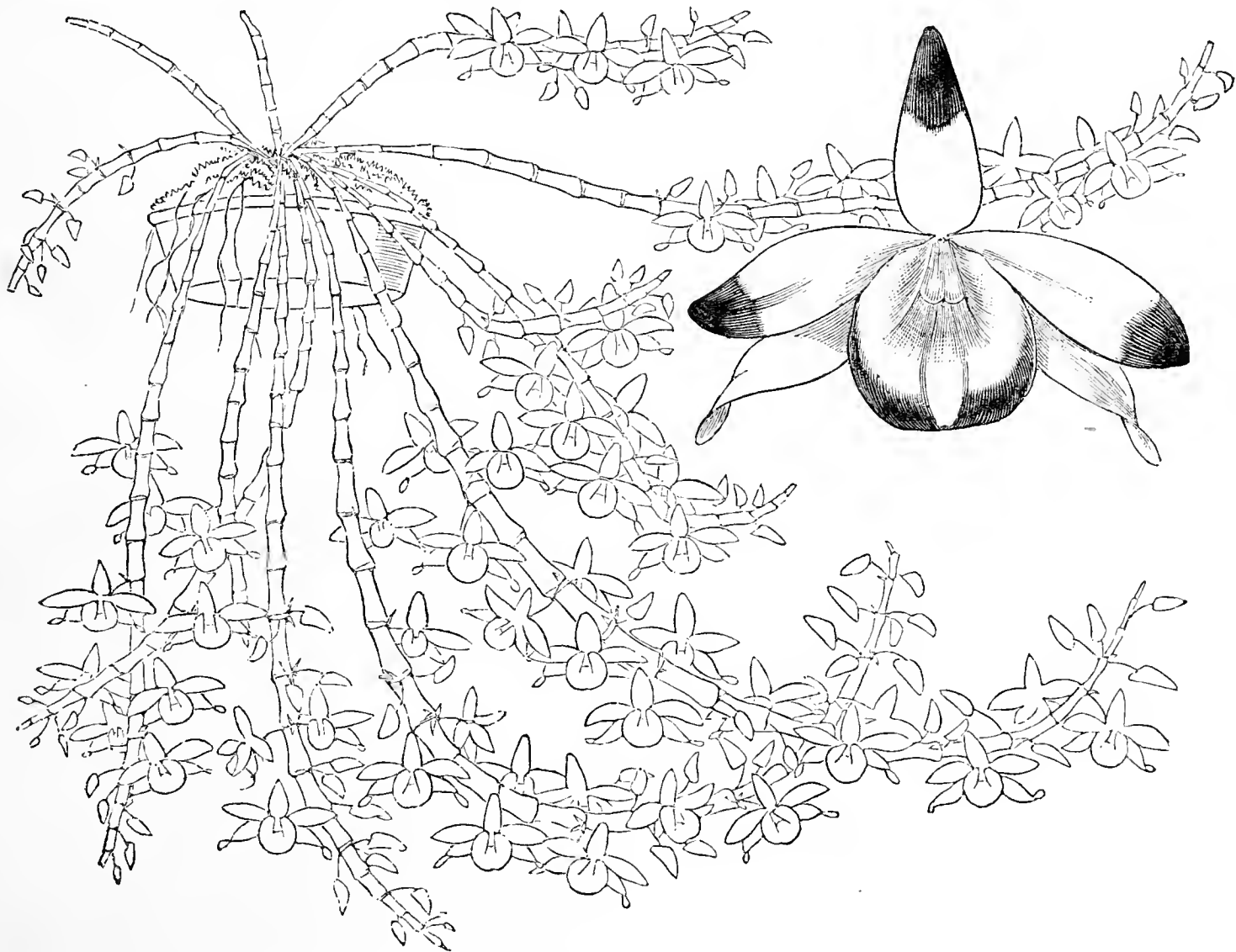


Fig. 77.—DENDROBIUM CRASSINODE.

which probably nearly a fourth are included in the genera *Dendrobium*, *Odontoglossum*, and *Oncidium*. In the number of species cultivated these genera are nearly equal, and with the exception of about three species all have been introduced within the present century, thus affording some idea of the attention that has been paid to this most interesting and beautiful family of plants. Sweet's "Hortus Britannicus," published in 1826, enumerates but twelve species of *Oncidium*, only three of which were grown in the last decade of the eighteenth century; ten species of *Dendrobium* are named, all introductions of the present century; while the genus *Odontoglossum* is quite unrepresented as one of the earliest grown, *O. biconense* did not appear until ten years after the date of Sweet's work. Now there is not less than a hundred species of each genus in cultivation; and with the varieties, some of which are almost distinct enough to deserve higher rank, a total closely approaching four hundred is obtained—a remarkable increase in fifty years; but these numbers only refer to the forms grown in English gardens, and probably there are twice as many known to botanists.

Leaving for the present the *Oncids* and *Odontoglosses*, a brief review of the leading characters and most beautiful forms of the *Dendrobes* will enable some idea to be formed of the extent and diversity of this handsome genus as it is known at present. In few other groups of Orchids is so great a range of variation in habit noticeable as among the *Dendrobes*. Some have erect or pendent cylindrical jointed stems several feet in length; others have large club-shaped pseudobulbs, and a few have diminutive pseudobulbs an inch or two in height. In the modes the flowers are borne there is nearly the same diversity; some are produced singly in pairs or in triplets from the nodes of the stems, others are borne in dense racemes, and still others in long lax racemes. The flowers, too, vary greatly in size, and many beautiful shades of colour are represented; purples and yellows are particularly abundant, the rich golden tints in some of the species being unexcelled in the whole order. The species are epiphytal, and chiefly inhabit the East Indian continent or the numerous islands in that region, but very widely separated portions of the earth's surface also contribute representatives of the genus. For instance,

Australia, New Zealand, Brazil, Guinea, the Society Islands, Japan, and China possess typical forms of more or less beauty, but they constitute the minority, for the headquarters of the Dendrobies is that first mentioned, and thence we have obtained the majority of cultivated forms.

The cultural requirements of Orchids so widely dispersed must necessarily vary to some extent, but still this variation is not so great as might be imagined. Nearly all the species require a moderately high temperature and a very moist atmosphere in which to make their growth, with sufficient exposure to the sun to thoroughly mature it, and cooler quarters during the resting period. Pots, pans, baskets, and blocks are employed, some species succeeding under each system, while others require special treatment, which will be noted when describing them. As a rule the stronger-growing forms succeed best in pots or shallow pans, the baskets and blocks being appropriated chiefly to the service of the more delicate. The majority thrive satisfactorily in the East India house, but a few need a cooler temperature than is maintained in that structure. With but few exceptions Dendrobies are of easy culture, and give very satisfactory results if ordinary intelligent care is bestowed upon them, and there are several among them which rank high with the most useful Orchids in cultivation.

In so large a genus some system of classification is needed, and this Lindley supplied. He arranged all the Dendrobies then known in ten groups, distinguished by their habit and the modes in which the flowers are produced. The first three include only a few little-known species; but the fourth, which was named Eudendrobium, contains a large proportion of the most attractive forms. This is characterised by long stems, erect or pendulous, with the flowers in lateral pairs, threes, or sometimes singly—that is, produced from the nodes or joints of the stems. It is found convenient to further divide this group into two sections—one in which the labellum is undivided, and the other in which it is three-lobed, the former being much the larger section of the two. In noting the finest of the genus we will first take the Eudendrobium group, commencing with the species having undivided labellums.

*Dendrobium Pierardi*.—One of the oldest known forms of the genus; and though surpassed by many in richness and brilliancy of colouring, its flowers possess a delicacy of tints which still render the plant a favourite. Specimens were first sent to Dr. Roxburgh at the Calcutta Botanic Garden by M. Pierard, who collected them at Chittagong and in the Delta of the Ganges, where the plant is chiefly found. In 1825 the Hon. and Rev. W. Herbert included a plant in his collection which was said to have been received from Dr. Carey several years previously, accompanied by the following interesting note—"It is cultivated at Calcutta by tying it on a smooth branch of a tree, water being constantly conducted to it by a string through a small aperture in a vessel above, that so treated it hangs down the length of 6 feet covered with flowers after the leaves decay." The stems are generally pendulous, bearing the flowers from their nodes either singly or two or three together, each about  $1\frac{1}{2}$  or 2 inches in diameter, with narrow elliptical creamy-white or purple-tinted sepals and petals, the lip being pale lemon yellow, the base rolled closely round the column forming a kind of tube. The flowers are produced in the early spring months, and a succession of plants will maintain a display for some time. There are several varieties differing from the type in the size and colouring of the flowers, one of the best being *D. Pierardi latifolium*. Basket culture suits the species very well, the usual East Indian house affording the quarters best adapted to its requirements.

*D. cucullatum*.—Though not so beautiful as its close ally *D. Pierardi*, this deserves a word or two of description. By some it is considered a variety of the species named above, but it is principally distinguished by the lip being more ovate in form and more open at the base, the sides not being rolled round column to half the extent they are in *D. Pierardi*. The flowers are  $1\frac{1}{2}$  to 2 inches in diameter, suffused with a pale pink tint, the lip being pale yellow; in other respects it resembles its nearest relative very closely in habit, foliage, and manner of flowering.

*D. Bensoniæ*.—An extremely handsome Orchid from Moulmein, whence it was sent by Colonel Benson to Messrs. Veitch & Sons fourteen or fifteen years ago. The stems attain a length of several feet, are round and pendulous, with the nodes well marked, but not swollen as in the two following species. The leaves are 2 or 3 inches long, linear, and produced on the young non-flowering stems. The flowers are 2 inches or more in diameter, and are borne in pairs or triplets from the joints of the old stems. The sepals are oblong; the petals similar in shape but broader, and both are white, the lip being broad, rounded, and of bright golden colour, with purple blotches near the base. Though by no means common, this is now included in most of the best collections, and is deservedly admired by all growers. One of the finest specimens

I have seen was that in Mr. W. S. Leach's garden at Fallowfield a year or two since, and which under Mr. Swan's judicious care flowered most profusely in 1878. Like the preceding this Orchid succeeds well in a basket with a little peat and moss.

*D. nodatum*.—A pretty species very nearly resembling *D. crassinode* in habit, but with more slender stems, and the nodes are not so strongly marked, though more prominent than in most other forms. It is very pretty when in good condition, but unfortunately it flowers rather shyly, though free in growth and easily managed. Were it not for this defect it would deserve more general attention, but probably there is some little peculiarity of culture necessary which has not yet been observed. The flowers are produced singly from the nodes of the old stems, the sepals and petals being pale yellow, an orange-coloured lip tipped with white or yellow and blotched at the base with deep red. The column presents a curious contrast with these tints, the base being spotted with purple and green, and the apex (the anther case) bright blue. The plant was sent from Moulmein by Mr. Parish some years ago, and it may be satisfactorily grown under similar treatment to *D. crassinode*.

*D. crassinode*.—One of the most remarkable species in the genus, and also one of the most beautiful when in such condition as is represented in the woodcut (fig. 77), which faithfully portrays a plant recently growing in one of Messrs. Veitch & Sons' Orchid houses at Chelsea. It was in one of the pans which have been often referred to as so well suited to many epiphytal Orchids, and from the health of the plant and the freedom with which it was flowering when the drawing was taken it is evident that better results could not be obtained under any other treatment. It is astonishing how the plant with the roots in such a small space could support growths of so great a length and such numerous flowers. The species is a native of the Arrakan Mountains, where it has been observed at an elevation of 2500 feet. It was first found by Mr. Parish, but plants were sent to Messrs. Veitch and to Kew by Col. Benson about twenty years ago, and they flowered simultaneously at both establishments several years later. The manner of growth is so well indicated in the engraving that description is not required, and the single flower is also good, but the upper sepal is usually more obtuse than is there shown. In colour the sepals and petals are white tipped with rosy purple, and the lip has a bright yellow centre. There are several varieties, one of the best being *D. crassinode Barberianum*, which has much larger flowers than the ordinary form, the colour being much richer; indeed it has been not unreasonably considered to resemble *D. Wardianum*. Other lighter-coloured varieties are *album* and *albiflorum*, the former having been exhibited by Sir Trevor Lawrence in excellent condition, and certificated by the Royal Horticultural Society.—L. CASTLE.

(To be continued.)

## LECTURE ON THE AURICULA.

[Delivered by the Rev. F. D. HORNER at South Kensington on the 19th inst.]

HISTORY (Continued from page 308.)

THE earliest known varieties of Auriculas were Rule Arbitrator, a green edge, and Hortaine, a white edge; these can be traced back to 1757, Potts' Eclipse following ten years later. As years rolled on there were other Eclipses, notably Cockup's, and from this some better flowers were raised. All the green edges of that early period were of a pale colour and often bare in the dust or farina. Taylor's Victory was a highly prized green in 1776; but of all the principal varieties of that time only Jingling Johnny, a green of inordinately broad edge, Lord Lee, a lovely carmine flower but without meal, and Pillar of Beauty, a stiff and starched old white, are in existence now. Improvements were patiently carried on until in 1821 we begin to find some flowers that are good or familiar names at present. Col. Taylor and Booth's Freedom appear upon the scene, two green edges of which a grower with good specimens would not be ashamed to-day. In grey edges Kenyon's Ringleader appears, the ancestral flower of that grand family in the greys in which Laneashire Hero, George Lightbody, and Richard Headly are flowers of such high mark. At that time Taylor's Glory was a first-prize flower, along with Lee, Bright Venus, and others; and the best selfs were Whitaker's True Blue, still extant, Grime's Flora's Flag, and Redmayne's Metropolitan. I remember the last being sold for 24s. a plant, but half a century ago it grew in garden borders and might be had for 2d. a head. Ten years later—1831—the green edges were a stronger class by several flowers still to be found in old collections. Such were Pollitt's Highland Laddie and Standard of England, but nearly all the first prizes that year fell to Col. Taylor. To the greys were added Sykes'

Complete, a good flower grown at present, and Grimes' Privateer. White edges were augmented by Favourite and Incomparable from Taylor the raiser of Glory, and by flowers of less note. The selfs have additions, but the best is Othello, a round-petalled black flower that was much thought of.

Another ten years—1841—and the most notable green edge is Page's Champion, once very plentiful, especially with the raiser, who was wont to throw surplus offsets into the Thames, but now exceedingly scarce, and one of the very few Auriculas difficult to grow in an impure air. At this period came Conqueror of Europe among the greys with much sensation, and Ashworth's Regular, a small correct white edge, still valued by some old growers in the north.

By 1851 some of Lightbody's flowers appear, such as Star of Bethlehem; but that and all others were outshone by the first appearance in 1846 of Lancashire Hero, Robin Lancashire's magnificent grey. Like many other light-mealed greys it has the power of blooming in a green-edged form, and that generally occurs either on a truss from a young plant or one formed very early on an old one. The bloom of its middle life at midseason is rich silvery grey. This surpassing flower is worth a word by the way. When first shown, which was at Rochdale, 1846, it was placed second to a flower inferior to it in character—Grimes' Privateer. Lancashire had then eight or ten plants of his seedling, and in his grief hastily sold all for a trifling amount. He offered a good deal more to have them back, but could not get them. From their first purchaser they passed to Mr. James Cheetham, by whom it was eventually sent out. But it is truly Lancashire's Hero, and no name but that of Robin Lancashire should ever have been associated with this flower. It is the noblest type of an Auricula, and at its best there is no grey better. Our opinions are, however, divided, and some of us hold by Headly's George Lightbody as the model. This is a grand flower that was sent out in 1861, and the two greys will probably never pass out of cultivation while Auriculas are grown. They will meet immense competition and have worthy companions, but they are Auriculas right properly, and no florist wishes to see them discarded, but he will not rest till he has their equals.

By 1861 we also had Campbell's Pizarro, long our brightest roundest self of soft brown, together with more of Lightbody's flowers; and Campbell was busy for years at this time trying to give us a crimson self of standard properties. His work at that extended over many years, and is a good example of a florist's patience. He started with a cross between the old carmine flower Lord Lee and a puce-coloured self of Martin's. At once he got the colour but he lost the paste, Lord Lee having none; and when Mr. Lightbody communicated to me his neighbour's success in two crimson selfs, Duke of Argyll and Lord Lorne, there had been failures past all count.

2. I pass on now to speak of the Auricula from a florist's point of view, and I cannot better lay the subject before you in the abstract than in the words of a brother florist, the Rev. F. Tymons, before whom the Auriculas here have often stood for judgment. He says, "The points of a good flower are not arbitrary, as the uninitiated sometimes say, but really appealing to canons of beauty recognised and allowed by all who have made a study of the plant. Thus, as in any other matter of beauty or taste, the verdict of those most skilled in the subject is that which is entitled to weight. Rigid attendance to these points is of proportionate importance in any flower which is largely the creation of skill, stretching forward to some ideal standard. Capability of modification under culture so as to draw nearer and nearer to that standard is one of the prime distinctions of florists' flowers. Among these none probably are more artificial creations than the Auricula. Hence the importance of a thorough knowledge of what a good flower ought to be."

Auriculas are divided first into two distinct groups, separated from each other by the marked feature of mealed or unmealed centres. Those destitute of meal are termed Alpines, and their essential qualities are the unmealed centre and the heavily shaded petal. The highest form in the Alpine is the shaded petal and the golden centre, which last is not difficult to obtain except in such as have lilac or any shade containing blue. To admit shaded flowers of these tints it has been found necessary to allow a pale almost white centre, unmealed of course. This section is the hardest and most prolific of all Auriculas, and those grown in garden borders are Alpine blood of more or less inferior strain.

The other group is the Auricula Royal, containing all the edged classes, which constitute the highest and most wonderful development of this flower. The green edges hold the highest rank of all, and are the only class in which a mealy habit of foliage never occurs. The contrast of their zones of emerald black and white in a setting of silver leaves would be very beautiful; but Nature denies this combination, though often granting the converse in

white edges with green leaves. The green edges have required the most winning, for the edge must be absolutely pure from meal, and that has been found a very trying test. Now, however, this splendid property is becoming more brilliant and more fixed, but that it has been one of difficult attainment is shown by the very few true greens among the old varieties.

The grey edges, a strong class, are those in which a sprinkling of meal, like hoar frost upon springing grass, lies delicately over a green edge without hiding it further than to give a pearly effect as of a silver dew crystallised and secured upon it.

The white edges are exquisitely fair and lovely—a very favourite class. The whole face of the flower except the dark velvet rim of ground colour must lie deep under a snowy meal, usually of finer grain on the edge than middle of the flower. Good true whites have been very few indeed among the old flowers.

Then follows that beautiful consort of the edged classes—the self. This with its densely mealed white centre and colour of one velvety unshaded and decided hue is a very different flower from the Alpine, and not the least approach of the one to the properties of the other can be tolerated.

Such are the differences that form the class distinctions in the Auricula; we must look a little closer to see what those properties are that give expression and harmony to all. The perfection of a whole lies in the perfection of its parts.

I take a single flower part by part. In the centre, the tube with its contents—stamens and pistil—is a little member, but one of mighty import. No outer brilliancy compensates for a central failure here. The whole truth of the flower lies in this little well. It should be round and sharply cut and bright. A rich gold tube bathes the flower in a sunshine of its own, and lights up into life and radiance features that in themselves may be dull and commonplace; but the tube that is pale or green casts a moonlight effect around it that strikes all brightness dim and cold. Not only do we dislike, but we distrust a pale tube in the Auricula. A tube thus weak is never otherwise strong. Watery colours are associated with thin textures, and the flower so constituted cannot live out half its days.

Florists are called punctilious and severe—so we are; but it is with reason that we are particular to a point and exacting to a shade. The Primulas being dimorphous in the relative positions of their stamens and pistil, it has been thought a fanciful and narrow choice that we should adhere to that form only in which the anthers are set round the mouth of the golden tube and the pistil at the bottom, rejecting the longistyla or pin-eyed arrangement. With what comparison shall I illustrate the reason of our choice? I will take for an example the difference between the eye of sculpture and of life. You know the vacant stare of the one, the vivacity and soul that speak and sparkle in the other. The stony lifeless eye of an Auricula is a pin-eyed tube, with the set expressionless pistil, its one hard feature. But where the delicate gold-dusted anthers are set round the eye of the flower, and the obtuse stigma is all but sessile on its ovary below, we have the fulness, softness, and play of what is happily termed the "mossy eye." It is the counterpart in the flower of the living eye that is so much in the character of a face.

But I pass on to the next feature on the coloured disc, and that is the white circle we term the paste. This is a dry snowy meal, and it must be round and broad and bright and dense. Where these properties are wanting the flower has, according as the faultiness may be, a sleepy, unwashed, ill-tempered, mean, cramped, miserly look. Thus a lively paste and a golden tube, each sharply cut and circular, are supreme points in a highly bred Auricula.

Now we come to a zone or circle further outwards on the corolla. What contrast to snowy meal lovelier and more rare could a flower give us than a sudden change to the softest velvet? Such is the texture of the ring of colour known as the ground or body. Black has been the most usual, largely because black was the favourite colour with so many old growers. There have been strange local antipathies to anything but black, a prejudice which we hope to see overcome by the winning argument of equally true and beautiful edged flowers with blue and with crimson grounds. It is true that the best of the old flowers are those with black body colour, but the reason is that the Auricula, as if unwilling to cast her pearls before the unappreciative, has made few offers of gifts that were not sought and would not be valued at their worth. But in whatever colour this velvet zone exists it is imperative that it be pure—unspotted, that is to say, with any of the meal that may lie on the edge beyond it or the paste within. Colours also should remain true and fast, and not fade before the other parts of the flower into weaker shades.

The last remaining portion of the markings on an Auricula pip is that extraordinary circle of, green, grey, or white that bounds



the flower and determines by its nature the class to which a variety belongs. I will gather into one word the share which the flower in all its classes should apportion to all its zones, and that word is "BALANCE." Taking the pistil as the centre, then across the half flower in a radius line, the tube, the paste, the body, and the edge should be balanced by equal breadths. The tube should be bold and golden and thrum-eyed, the paste quite its proper breadth, and indeed rather over in the case of the selfs in which the body-colour really represents two zones; and therefore for a good balance the paste should represent rather more than one, or it will look narrow. The body flashes into the edge, but must not run out at the petal corners, and it must not be altogether flashes, but have a solid ring, and the more solid the better—without this the peneilling is thin and scratchy.

**CULTURE.**—As to the culture of the florist Auricula, it is not within the province of this lecture to give you a complete calendar of cultural operations. But it is amusing for a moment to peep into the potting sheds of the past old masters. It was a select school of cookery for the Auricula, in which the plants themselves were often victimised. The compost heaps were not so much an honest provision shop for the flower as its confectioners or druggists, where it was forced either to make itself ill with sickly sweets or was overdosed with dire stimulants till, after a flash of burning wasteful life, it died. One professor of long ago writing in dialogue conducts a horrified neophyte round his compost yard, where the young beginner is completely upset by an inspection of horrible effects from the slaughter house, sugar refinery, and other sources of refuse. "Our compost," says the master, over a vile compound, "is now in fine killing order; it would poison an Oak tree!" No! ent for your plants a few sods from a pasture which the Buttercups will tell you is sound and rich. Ramble in the woods, and instead of a cornucopia of wild flowers bring back what you can carry of mellow leaf soil. Ask the gardener for a little slice of the hotbeds that grew last year's Melons or Cucumbers. Make about equal parts of all you have with, say, charcoal to keep it open, and you have all the Auriculas will care to ask for.

As for the rest, keep their feet warm—*i.e.*, their roots well drained; their clothes dry in winter—*i.e.*, their leaves from wet. Remember that while the plant itself is hardy beyond limit, yet its refined blossoms are inexpressibly tender; that it belongs to the pretty family that loves a partial shade. Think how the bare trees and hedges let in all the winter sun upon the sleeping Primroses; how the young leaves on the boughs temper the sunshine over them in spring, and the full leafage hides them from it all the summer; and if you wish to grow seedlings which you should, be as much like Nature to them as you can. Sow them when she does—as soon as ripe; cover them as she does, which will be not at all, except by something that may represent the agencies of shade and moisture under which the young seeds grow, say a piece of glass over their cradle pot, and when they bloom they will be a great reward.

Here I draw to its close my story of a florist flower. I have wished to show you what a store of interest it has for the true florist. He may be a toiling man pent up in a dirty ugly town, but here is a flower that will smile to him in that capacity, and look a contentment that imparts itself, thriving as though the smoke drifts were but natural clouds, and the dry hard shadows fell from waving boughs. He has his few plants, and he will see more of Nature's features and variety in a frame of Auriculas than another who has no heart, and so no eyes, for such things, will notice in a whole landscape. In that innocent taste there is a pleasure very deep and lasting; and how much does the companionship of a friend like-minded add to it! The florist would rather have the steady continual sympathy of a brother florist the year round than beat a dozen strange competitors at a show. He must needs feel proud of his plants on their exhibition day, but that short excitement is only a small part of his whole pleasure and reward. Mere money profit is no motive in his attachment to his rural tastes and floral favourites.

At the exhibition tables a good loser and a modest winner, he is not the sordid mercenary man of whom there might be said, as it sparkles in the wit of Thomas Hood, that for him "the great god Pan is dead, and Pot reigns in his stead!"

It is remarkable how those who have loved this flower have loved it to the last. I could tell you of George Lightbody, who in a long illness would have a favourite Auricula at the bedside, and plants brought up that he might see what needed to be done; of Robert Trail, who past his eighty years, came to see the flowers

of his raising in our hands at the Northern Show; of Richard Headly keeping to a few Auriculas among the last of all his flowers; of old Robin Laneashire coming from his famed florist county to my own of the white Rose to see the Auriculas, and his eye, bright with an "unfamiliar brine," at the sight of Laneashire's Hero in his great glory.

It is no small thing to say of a favourite flower that it has been the first cause of many true companionships and fast friendships that will endure till all human interests here are at an end for us.

### A PLANT PIT.

CAN you aid me in erecting a plain, useful, and inexpensive pit for the growth of Cucumbers and Tomatoes in summer, and decorative plants such as Primulas, Cinerarias, bulbs, &c., in spring? I have heard of "sunken pits," but have no clear idea of what they are. Any assistance or instructions will be highly appreciated by "AN ARDENT AMATEUR WITH SMALL MEANS."

For the benefit of our correspondent and others whose "small means" deter them from erecting elaborate structures, we submit the following instructions from the April number of the *Gardener*.

"In the erection of pits, the conservation of heat by the means of 'mother earth' is very often under-estimated, if not ignored altogether. I think there is nothing that we can do with more advantage to our plants than endeavour to have them rather under ground than above it. The further a house or pit is raised above ground, the more it catches the bitter blast in winter. The roof we must have exposed; but why have the walls also exposed, when they

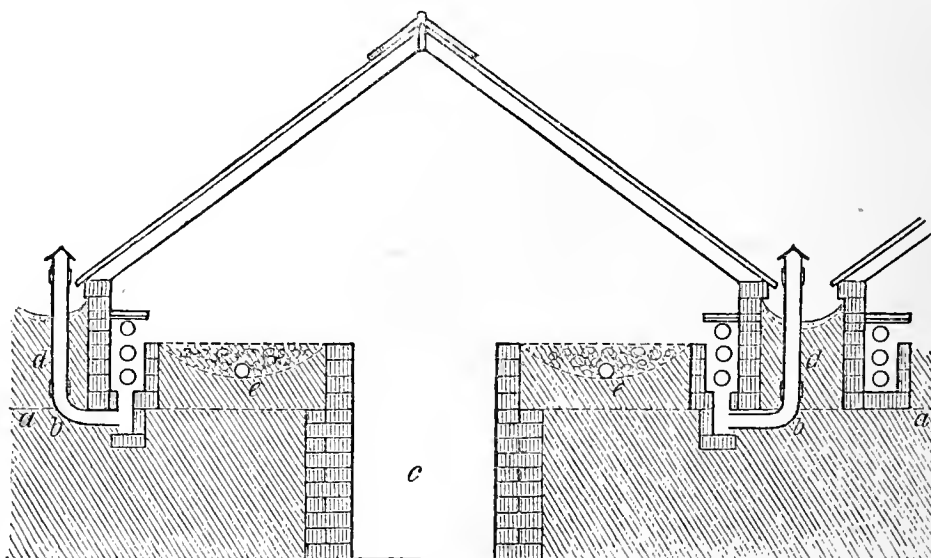


Fig. 78.

can be built for less money, and heated at less cost afterwards, by having nothing exposed to the elements but the glass roof? And not only is it of advantage in heating in winter, but it is of great advantage in the maintenance of more genial moist atmosphere in hot dry weather in summer, as everyone can testify who has had experience of such pits, or given the thing serious consideration. For a range of useful pits I would suggest something like what is represented in the accompanying section. Supposing *aa* to be the ground-line, mark off and level the soil where the outside walls are to be, and run it hard so that there is no chance of its sinking. On this build your outside walls, placing at intervals of 6 or 8 feet under the wall a right-angle elbow 3-inch sanitary pipe, socket end up, as shown at *bb*. By placing three bricks on edge round its end, and breaking off the end of the brick just above this pipe, a connection with the inside of the pit is secured. Another pipe, placed in the socket at *b*, will rise above the eaves of the pit; and to prevent wet entering, a tin or zinc cover can be supported 3 inches above the pipe by three pieces of stout wire, to fit inside the sockets. These will form ventilators which may in most cases be left open, except in severe weather; but when desirable to have them at command, a small shutter to each inside can easily be applied. When the mortar is sufficiently set, the spaces between the walls *dd* and also *ee* may be filled up with the soil excavated for a footpath *c*, building a wall on each side in the usual way. The space between the pits should be in the form of a gutter, asphalted, and made to carry the water to tanks inside the pits. These gutters should be 18 inches or 2 feet wide, and if the ventilators are placed alternately there will be plenty of room for cleaning out, attending to shading in summer, or applying mats or other coverings in the winter. A drain-pipe under the ashes in the beds will carry part of the water (otherwise wasted) back to the tanks. The inside arrangement of this pit is specially adapted to the growing of decorative plants of dwarf growth, such as Cyclamens,

Primulas, Cinerarias, Bouvardias, Achimenes, Begonias, Poinsettias, and dozens of other plants, which will do far better than in houses of any other description. But with a little modification of the arrangements it can be made equally suitable for propagating, forcing winter-flowering plants, growing pot Vines, Melons, Cucumbers, Tomatoes, &c.

"The great objection to these sunken pits is the necessity of having steps down to the doorways. This, however, is not always necessary. If they are built on sloping ground they may be so arranged as to be wholly under ground, except the ends in which the doors are placed. In such a case the end walls would have to be built first, the mean height of the soil ascertained and levelled in the same way as you would form a terrace, and upon this level, properly consolidated, commence to build as on level ground. In building a number of such pits a large tank should occupy the opposite end to the door, and these should not only be connected with each other, but should be made one tank, so that the water will run direct from the gutter into it. In every such tank a flow-and-return hot-water pipe should be placed, for the use of cold water in watering plants works untold mischief wherever it is applied in heated structures.—R. INGLIS."

#### A KENTISH WOOD IN APRIL.

WHATEVER may have been the effect of the past severe winter on our garden favourites, it has not diminished the glories of our woodland flowers. I have been here now for thirteen springs, but I do not think that I ever saw anything to equal their beauty this year. Our woods are somewhat peculiar; they are composed mainly of a few large trees, and amongst them a quantity of Chestnuts, Ash, &c., which are cut down about every eight or nine years close to the ground. From these a number of shoots spring up, which attain in the time I have mentioned the height of from 12 to 16 feet, and are then cut down and used as hop poles. The first year that they are cut down the flowers which fill the ground begin, under the influence of the greater light and air, to increase and show themselves; but the second year they come forth in all their beauty. We have one such wood close to the cottage, and I do not think I ever saw a more lovely sight than it is now. Imagine many acres of Primroses covering the ground in patches, and in places uprising above them great masses of the beautiful mauve-coloured Cuckoo Flower, *Cardamine pratensis*; while here and there are patches of the scentless Violet, and peeping up amongst them a plant of the early spotted Orchis. Now here is a combination that I suppose no gardener would ever attempt; and yet not only can I testify to its being a most pleasing one, but I can quite believe what Wallace, Burbidge, and other travellers in the tropics tell us—that, grand as are the plants and gorgeous their colouring and quaint their forms, yet nowhere is there to be found such a wealth of colour as we can show in the Primrose glades, the Bluebell woods, or the Gorse commons of bonnie England; and when we recollect the flaunting colours which so often distinguish our gardens, it is a relief to find that combinations so beautiful and yet so quiet are to be found in Nature's bedding-out.—D., Deal.

#### ROYAL BOTANIC SOCIETY.

##### SECOND SPRING SHOW.

THE second Exhibition of spring flowers for the year was held in the conservatory and corridor at the Society's Garden, Regent's Park, on Wednesday last, and proved very satisfactory both in regard to the number of exhibits and their general good quality. The following notes are necessarily brief, owing to the great demands upon our space and the brief time at our disposal after the completion of the awards.

*Stove and Greenhouse Plants.*—Several very satisfactory collections were staged in the classes for these plants. In the open class for twelve specimens Messrs. B. Peed & Son were first with small but neat examples of *Pimelea spectabilis*, *Azalea Gloire de Belgique*, and *William Bull*. Mr. G. Wheeler, gardener to Lady L. Goldsmid, Regent's Park, was a close second with healthy specimens, *Azalea Charmer* being particularly noticeable for the large size of the flowers. Mr. R. Butler, gardener to H. Gibbs, Esq., St. Dunstan, Regent's Park, was third with small plants.

*Azaleas.*—These formed an important feature in the Show, being generally well flowered. Messrs. B. Peed & Son, Streatham, were first with a collection of six neat profusely flowered specimens. Mr. C. Turner; Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge; Mr. A. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham; and Mr. G. Wheeler secured the other chief prizes. The colours of the flowers were particularly bright, and some of the collections included really fine plants.

*Roses.*—In the classes for nine Roses in pots and six new Roses there were only two collections staged—namely, those from Messrs. Paul & Son, Cheshunt, for which the chief prize in each class was awarded. The plants were in excellent condition, the foliage healthy, and the flowers generally of good size and substance.

Rhododendrons and hardy Azaleas were exhibited by Messrs. Lane

and Son, Great Berkhamstead, who secured the principal prizes in both classes with some well-flowered plants of good varieties. Cinerarias, Amaryllises, and Pelargoniums were not largely represented, the chief collections being those staged by Mr. Wiggins, and for which were the first prize in each class. Mr. Douglas, gardener to F. Whithourn, Esq., Loxford Hall, Ilford, Essex, secured the principal prize for a collection of twelve Auriculas, all in vigorous health.

*Groups.*—These were extensive, bright, and tastefully arranged, the chief nurserymen's collections, as usual, forming the greater part of the display. The grand group of Roses and Clematises from Messrs. Veitch & Son of Chelsea occupied one end of the conservatory, and proved one of the chief attractions. A large silver medal was awarded. Similar honours were granted to Messrs. Paul & Son of Cheshunt for a very large collection of specimen Roses, the same as those referred to in our report of the Royal Horticultural Society's meeting; to Mr. Charles Turner of Slough for a fine group of small Azaleas, representing many handsome varieties; and to Mr. B. S. Williams for a collection of choice stove and greenhouse plants and Orchids. Silver medals were also awarded to Messrs. Cutbush & Sons, Highgate, for a very tasteful group of white Azaleas, Statice, Ferns, and Palms; and to the General Horticultural Company, Regent's Street and Anerley, for a large collection of new and rare plants. Large bronze medals were secured by Mr. Turner, Slough, for a group of Auriculas; Mr. Wheeler, for a group of miscellaneous flowering plants; Mr. Walker, Thame, Oxon, for four boxes of excellent Rose blooms; and Messrs. Barr & Sugden, for a collection of Daffodils. The certificates for new plants were not awarded when our reporter left the Exhibition.



#### HARDY FRUIT GARDEN.

CAREFUL attention should be given to Apricot and Peach trees in blossom, affording protection only when there is a probability of frost during the night, and on cold days when the sky is overcast. Opaque material should never be allowed to remain over the trees longer than is absolutely necessary to insure the safety of the blossom, embryo fruit, and tender foliage, such material having a weakening effect on the growth. A little trouble in removing the material in mild weather and replacing it when needed, would not only secure the crop but contribute to the health and durability of the trees. A small outlay in protecting materials would be a good investment, not only for choice kinds of Plums, Pears, and Cherries on walls, in addition to Apricots, Peaches, and Nectarines, but for plantations of bush fruits, bush, pyramid, cordon, and espalier Pear, Plum, and Apple trees.

#### FRUIT HOUSES.

*Peaches and Nectarines.*—The dull cold weather lately has rendered careful attention necessary in ventilating and in the application of artificial heat. In the earliest house with the fruit advanced maintain a temperature of 60° to 65° by artificial means, with a slight increase by day so as to allow a change of atmosphere by moderate ventilation, allowing the temperature from sun heat to rise to 80°, 85°, or 90°, closing the house early. Tie-in and thin the shoots, stopping such as outgrow the limits assigned to them, and where the foliage is too much crowded near the fruit a few leaves may be shortened or removed. Fruit on the under side of the trellis should be carefully brought to the light by means of smooth thin laths placed across the trellis. If syringing be too long continued the fruit is liable to be disfigured and its quality deteriorated; therefore cease syringing and gradually lessen the supply of water to the inside border, but not to such an extent as to distress the foliage, or the fruit will not ripen freely, whilst the effect on the buds for next season's crop will be disastrous. When the fruit is nearly ripe some hexagon or other soft small-mesh netting stretched beneath the trees is useful to catch any fruit that may fall. Despite the unfavourable weather the condition of the crop under glass is generally satisfactory. In succession houses attend to disbudding the shoots and thinning the fruit.

*Figs.*—The earliest forced trees of the earliest varieties, such as Early Prolific and Early Violet, are ripening their fruit, when watering must be gradually reduced and syringing overhead discontinued.

Other varieties that have their fruit swelling may be supplied with liquid manure about twice a week and syringed at closing time. Keep the frame well ventilated in favourable weather, and this will improve the foliage and the quality of the fruit. When the Figs show indications of ripening generally reduce the moisture gradually both at the roots and about the house. At this stage keep the house freely ventilated, especially when the weather is favourable. The night temperature in all but the late houses should now range from 60° to 65° at night, and 75° to 80° or 85° from sun heat in the day-time. Proceed with tying-in the shoots required for extension or filling up vacant space, stopping the spurs at the fourth or fifth leaf and the laterals on these at the first or second leaf. Keep the borders suitably moist, and syringe twice a day to keep down red spider.

*Cherry House.*—When the roots of the trees are confined to the limits of the house the border should be well soaked with water, and if the trees are carrying a heavy crop and are not in a vigorous condition weak liquid manure will be beneficial to them. Syringe the trees twice a day, and keep the surface of the border constantly moist. As soon as the shoots have made four or five joints pinch out the points of those intended to form spurs, and carefully tie-in those required for the furnishing of the trees. These matters are important to secure symmetrical trees. Continue attention to former instructions as to temperature and ventilation.

#### MUSHROOM BEDS.

Collect materials for making beds in more open and airy situations than the Mushroom house, in which the Mushrooms after May invariably become maggoty. Rather less straw litter should be procured with the crude horse droppings, and after a sufficient quantity has been collected proceed to make up the beds, a shed open to the north being a suitable position. If materials are scarce, a mixture of about one-third leaves or sawdust will afford good results. Beds in bearing will need sprinkling daily with lukewarm water, damping around them occasionally. Supply beds that are too dry or showing signs of exhaustion with liquid manure at a temperature of 90° to 100°, and as a safeguard against insects follow in about a week with a good surface supply of water at the same temperature, with 2 ozs. of salt to each gallon.

#### PLANT HOUSES.

*Stove.*—Attention must be given at once to the propagation of winter-flowering plants. Cuttings of Begonias should be inserted, *B. insignis*, *B. Saundersiana*, *B. fuchsioides*, *B. nitida*, *B. Ingrami*, and *B. semperflorens* being useful kinds. When they are rooted shift them into larger pots, and grow on during the summer in plenty of light. *Plumbago coccinea superba* cuttings should be inserted with a heel, and *Luculia gratissima* now propagated and kept growing on freely during the summer will make useful flowering plants for conservatory decoration. *Sericographis Ghiesbreghtii* cuttings now inserted in loam with a little leaf soil and sand, and grown on, not allowing them to become root-bound until finally potted, stopping once or twice to insure bushy growth, will be useful plants in autumn. Insert cuttings of *Centropogon Lucyanus*, and when struck grow them in a light position, and not in too much heat. *Eranthemum pulchellum* and *Thyrsacanthus rutilans* should be struck from young growths, and *Hebeclinum ianthinum* also must now be propagated, young shoots striking freely. Cuttings of *Scutellaria Mocciniana* and *S. pulchella* now inserted around the sides of a 5-inch pot and afterwards shifted into a 7 or 8-inch pot, will make a fine display in autumn. Keep them near the glass to render the growth sturdy. *Aphelandra aurantiaca*, *A. Roezli*, and *A. nitens* are best obtained from seeds, but cuttings strike in moist heat. They should have a position near the glass in moderate heat, but plenty of moisture. *Centradenia rosea* and *C. floribunda* are pretty, blooming profusely. Cuttings struck now and grown through the summer make useful plants in 6 to 8-inch pots. Old plants of *Poinsettias* that have been kept dry should now receive water and be placed in a genial temperature, having cut them back previously. Those intended to furnish several heads of bloom should be cut back to about 6 inches from the base, and placed in a temperature of 60° at night in a light position to keep them sturdy. When they have started turn them out of the pots, reduce the balls at least half, and pot

in turfy loam. Plants to furnish cuttings must be near the glass, and when the shoots are about 4 inches long take them off with a heel, insert singly in sandy soil, and strike in heat, being careful not to keep them too moist. *Clerodendron fallax* and *C. fragrans* should be cut back, and when growing potted in sandy loam. The bright colour and grateful fragrance should secure for these a place in every stove. *Amaryllises* that are growing require weak liquid manure.

*Greenhouse.*—*Solanum Capsicastrum* cuttings inserted some time ago are now well rooted, and should be placed at once in 4-inch pots, and be kept growing in a genial atmosphere for a few weeks. Gradually harden them off, shift them into 6-inch pots, and plunge in ashes in a sheltered sunny situation; or in favourable localities they may be planted out and lifted in autumn. Old plants should be cut well in, and after they have started growing turn them out of the pots, removing two-thirds of the old ball, and plant them about 18 inches apart on a warm border until autumn, when they may be taken up and potted. *Hydrangeas* now being forced into flower have suckers springing from the base, and these inserted in small pots and placed in a little heat will root quickly, when they may be moved into 4-inch pots and afterwards shifting into 6 or 7-inch pots, and with good management they will flower finely next season. For conservatory decoration there are few finer plants than *Campanula pyramidalis*, both blue and white varieties. Turfy loam, with a fifth of well-decayed manure or leaf soil and a sixth of sand, will suit them well. Seeds sown now in a shallow pan in gentle heat will produce plants that will flower next year. *Humea elegans* if encouraged with liberal root room is useful for the conservatory. *Balsam*, *Cockscomb*, and *Globe Amaranthus* seed should now be sown, and the plants obtained will come into flower at a very acceptable time.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

##### KITCHEN GARDEN.

THE season is very late, and those who have sown and planted at the usual time have little to congratulate themselves upon. The summer will be here before we are prepared for it, and for this reason several important operations ought now to have been completed. The present is a good time to sow the main crop of Beet; as if sown earlier in many gardens it is liable to grow much too coarsely. A somewhat light soil, manured for the previous crop and deeply dug, is suitable. Sow the seed thinly in drills 15 inches apart. The same remarks are applicable to the main crop of Carrots. To maintain an unbroken supply sow Lettuce and Radishes in small quantities fortnightly in preference to larger sowings at wider intervals of time. Peas and Spinach should be again sown when those last sown are appearing through the surface. Suitable varieties of the former are Alpha, Hairs' Dwarf Mammoth, Nelson's Vanguard, and Laxton's Supreme, second earlies; and Dr. McLean, G. F. Wilson, and James' Prolific to succeed these. Of taller varieties Telegraph, Telephone, Champion of England or Huntingdonian, and Fortyfold. Suttons' Duchess of Edinburgh is also good for this sowing. Earth up those advancing, and place stakes to them before much growth is made.

When planting Cauliflowers, either autumn or spring sown, it is a good plan to distribute them in batches in order to lengthen the duration of the crop. Some of the strongest should be placed on a south or west border, others in an open warm position, and the remainder in the coolest part of the garden. Deeply dug and freshly manured land suits them, and they should be firmly planted with a trowel, or otherwise some of them will form heads prematurely. Large heads are not the best, and it will be found most profitable to dispose the plants rather thickly, says in rows 2 feet apart, and from 15 to 18 inches asunder in the rows.

If no Kidney Beans are sown it is advisable to raise a few plants in heat and transplant them to a warm border. A very profitable variety is Osborns' Forcing; 3-inch pots and any common soil may be used, with a little rough manure for drainage. Place two seeds in each pot, and the young plants should be hardened off and placed out quickly. Fifty plants will give several acceptable dishes. On a warm border sow seeds of Osborns' Forcing and Canadian Wonder or other main crop variety, the former in rows 18 inches apart and the



latter 2 feet. In warm localities the Scarlet Runners may also be sown. As before stated these may be profitably grown without stakes, the running growth being kept closely pinched in, placing the rows about 3 feet apart, and working in a row of early Potatoes between them. If stakes are employed the rows should be 6 feet apart, and between these two rows of early Potatoes may be grown, or if preferred early Cauliflowers may be substituted. The ground should either be trenched or deeply dug and well manured. The plants should on no account be crowded. Sow seed thinly in single drills about 2 inches in depth. Beans may be readily transplanted, and where chickens are troublesome it is advisable to sow thickly in any rough boxes and place the plants out before they have grown very much.

*Forming New Asparagus Beds.*—It is not yet too late to transplant Asparagus, the young plants, which only are suitable, being best moved when commencing growth. It is not absolutely necessary to trench the ground 3 feet or even 2 feet deep, as good results are obtained on ordinary deeply dug soil. Neither are beds necessary, and if the ground is moderately rich no manure need be dug-in the first season. Level a well-pulverised breadth of ground, shovel out wide drills about 3 inches deep and 2 feet apart, and in these dispose the plants 18 inches asunder. When planting spread out the roots carefully and cover firmly. Excellent Lettuces may be grown between the rows during the first two years. If beds are preferred they may be 5 feet wide, and planted with three rows, one in the centre, the others a foot from the edges. Where the fruit bushes are widely disposed a single line of Asparagus may very profitably be grown between them, and single plants wherever there is a wide opening. Surface dressing is preferable to digging manure in deeply.

#### FLOWER GARDEN.

*Sowing Seeds of Annuals.*—Bedding plants are very scarce, and for this reason annuals ought to be made to play an important part in the summer display. It is becoming late for sowing many kinds, but some seeds sown earlier have either not germinated or have been destroyed by insects. Mignonette is a general favourite, and will thrive anywhere provided it is not crowded. To economise the bedding plants sow Mignonette thinly throughout the largest beds or borders, and among the young plants place Pelargoniums, Stocks, Asters, and other bright-flowered kinds; or sow patches of Godetias, Candytuft, Hibiscuses, dwarf Tropæolums, Scabious, Stocks, Asters, Clarkias, Convolvulus minor, Lupins, Love-lies-bleeding, and others, according to their respective heights. Wherever annuals are grown it will be found a great mistake to crowd them, as the majority are branching in habit, and if this habit is encouraged the quality of the blooms will be superior, and the duration considerably lengthened. The seeds germinate most surely on light soils, and where the soil is heavy it is advisable to lightly cover the seeds with a little sifted sandy soil from the potting shed. Make the surface even, and water it if dry an hour previous to sowing. Sow Sweet Peas in small pots or where they are to flower. Seed of Carnations, Pansies, and Polyanthus for flowering next season may be sown in pans or boxes, and placed in a cold frame.

## THE BEE-KEEPER.

### HOW, WHEN, AND WHERE TO USE COMB FOUNDATION.

WHILE the advocates of the skep are still tenaciously clinging to the idea that their hive affords more comfortable quarters to its inmates than that with moveable frames—a position true at one time, but now most inaccurate if reference be made to the hive of to-day as we find it in good hands—we of the forward school may, for the present, be contented with the general admission that foundation, which we alone can use with comfort and the best effect, affords us an advantage which cannot be controverted. I need no further apology for endeavouring to give some hints as to the use and methods of manipulating this

modern invention, for we are now entering upon the time when these half-made combs in the body of the hive have their highest utility.

We have often been reminded of the severe logic of the cookery-book writer, who declared it to be necessary to catch the hare before proceeding to skin it, which seems to suggest that a few lines as to our selection of foundation from amongst the three or four varieties now in the market may not be out of place. I shall very briefly give the reasons for my preferences, which may have this recommendation, that I have no personal interest in the matter. All know that foundation consists of sheets of wax by some means impressed so as to determine the size and arrangement of the cells, while the sheet itself, as it is converted by the bees into comb, becomes the midrib of the latter, the general form and position of which can be so completely determined by the bee-keeper, that by the exercise of a little ingenuity the busy throng may be made to write their "Welcome," or draw some simple device in their inimitable tracery.

An examination of ordinary comb will show that the cells stand back to back, so that the centre of each cell on one side is over the point from which radiate the walls belonging to three contiguous cells of the other side, and that the edges of these walls are connected with the sides of the cell by three flat lozenge-shaped plates. The beauty of this plan as economising material and giving strength would require at least an article for its treatment, and it has been made the subject of more than one learned essay. Its value is self-evident, while a study of the ease makes clear a number of very curious co-relations. Ordinary foundation imitates faithfully this natural arrangement, and combs built from it have the disposition of parts found in hives innocent of "art and man's device." But the objection has been made that such foundation is disposed to stretch, and to prevent this a form has been introduced in which the cell walls are indicated upon a flat ground, but in the relation to one another, and to those upon the opposite side of the sheet, which we find in normal comb. This "flat-bottomed" foundation, if the stretching of the more accurate form had not been obviated, would have a *raison d'être*, and it must be admitted that as the bees work it out the thinning-down of the sheet produces the three lozenges, though in less marked form than in natural comb.

This make of flat-bottomed foundation must not be confounded, however, with another which marks the cell walls as the one just commented upon, but preserves no relation between the marking on the two sides of the sheet—a disadvantage from at least two sources, even if we leave the comparatively unimportant question of strength out of view. 1st, The cell ends are left unnaturally flat; and 2nd, In paring down the sheet the bees on opposite sides interfere with one another, as, if they persevered in forming the cell upon its true lines, the sheet would be pierced. They are thus prevented from utilising the wax, which in the ordinary and correct form supplies the material from which the cell walls are more or less completely elaborated.

In very hot weather foundation in full-sized sheets, whether flat-bottomed or otherwise, requires especial care if stretching is to be prevented; and this led to the introduction of wired foundation, into which thin iron wire is embedded during the manufacture. The promise was widely different from the realisation, for this foundation, though it did not stretch, the unremovable wires so worried the bees that in slack times they teased away their combs at the bottom in order to bare the wire, and so, if might be, eject it. I purchased between £3 and £4 worth of this novelty in order to test it thoroughly, and my condemnation is now endorsed by its own inventor. Any (dealers excluded) who would like to try it still may have a little of me in exchange for an equal weight of good wax. My own pronounced opinion, then, is in favour of the ordinary form giving the impression of the cell base, although upon theoretical grounds I believe this form should not be so distinctly angular as all existing rollers make it. This notice would not be complete without reference to foundation with a wooden midrib, which is no novelty, having been perfected several years since in America; and though it has great advantages for combs that are subjected to continued journeys, such as those in hives used for explanations with a bee tent, yet it is not likely to be extensively used, as the bees work it less freely than they do impressed sheets, and if at any place they bare the wood the comb is spoiled. Queen cells cannot be manipulated with it; its cost is somewhat greater than that of wax sheet, and near the edges the bees cannot be easily induced to work it at all. I had the opportunity of seeing several of these wooden-centred combs in Dorsetshire a few days since. Not more than half the cells had been built out, and the wood was in many places completely stripped of wax; the bees had in consequence been kept to the central part of the combs and had been terribly reduced, being

destroyed in detachments during the winter through being unable to decrease the number of their seams.

Having determined the make of our foundation, let it be understood that that which has been long in stock is not worked out so readily as that more recently manufactured, especially if it has been exposed to the light. This arises from the fact that a chemical change is brought about by this exposure, which raises the melting point 8° Fahr. besides decreasing the plasticity of the material at lower temperatures. The sheets by this process become whiter, it is true; but this is a disadvantage even for sections, as sheets of yellow wax, while they are softer, become perfectly white in the process of elaboration into comb.

Of course it is understood that foundations for sections, if used in size, must be of a special thin kind, and for the reason just given pale yellow wax should have the preference. I will refer to fixing the foundations in frames in a future issue.—F. R. CHESHIRE, *Avenue House, Acton, W.*

### SUCCESSFUL SHIPMENT OF HUMBLE BEES TO NEW ZEALAND.

THROUGH the kind aid of friends in Scotland I was able to send a package containing humble bees to New Zealand by the steamship *John Elder*, which left for Melbourne on the 9th December last, with instructions to re-ship from that port to Canterbury, New Zealand; and again on the 20th January I was supplied from the same source and shipped another parcel by the steamship *Norfolk*, which sailed direct. I have just received the *Timaru Herald*, which is so explanatory of the adventure that I thought it might interest your readers. Although the present result seems small it is encouraging to learn that the attempt has been so far successful. Considering that Mr. Frank Buckland and others have failed in getting these bees to the colony alive, it is a matter for congratulation that two fertile mothers have been let go on the wing at the Antipodes. Probably the fate of the last shipment has yet to reach England.—ALFRED NEIGHBOUR, 149, *Regent Street*.

[From the *Timaru Herald*, Monday, February 7th, 1881.]

"HUMBLE BEES.—The two queens, the survivors of a shipment of eighteen consigned to Mrs. Belfield, were turned out on Mr. Bristol's farm on Saturday morning. They were strong and healthy, and flew away briskly against the wind. Being liberated amidst Clover fields there is every chance of their doing well. Some years ago the present Premier of New Zealand attempted the introduction of this useful insect, but unsuccessfully, the last of the creatures dying within ten days' sail of our coast. Not being aware of any successful attempt at their acclimatisation being made heretofore, we believe that the pair of queens set free on Saturday have the honour to be the first of their kind in this country. The thanks of farmers are specially due to the lady, who, when in England about three years ago, saw Mr. Neighbour (a somewhat celebrated apiarian at home) on the subject of sending humble bees to New Zealand. Mr. Neighbour took up the matter, and promised when opportunity offered to send out a consignment, at the same time pointing out the risk attending such a shipment. That gentleman spared neither trouble nor expense in endeavouring to make the venture a success. In the first place, he employed an agent in a district in Scotland where the bees were unusually plentiful to mark down the nests in the summer, and then in the early part of the winter each nest with its queen was carefully dug out and placed separately in a nest of moss in a box for export. Being in a state of torpor when taken from the Scottish home it was a *sine qua non* that they should continue in that state the whole of the voyage to the Antipodes; consequently they were placed in the ice house of the *John Elder*, one of the Orient line of steamers. On arrival at Melbourne the box was handed over to the captain of the *Arawata* to carry on to New Zealand. From the appearance of fully one-half of the dead insects there is every reason to believe that they were alive on arrival at the Bluff but, unfortunately, a delay in their transit here took place, which was fatal to all but two. The telegram to Mrs. Belfield telling of their arrival was dated the 31st ult., at the same time intimating that the *Arawata* came in on the 26th. Yet further delay took place, and the interesting strangers did not arrive in Timaru till the 3rd inst. Mr. Hislop, late of the Timaru domain, kindly took charge of the box, and opened it out with the results as above stated. To our readers who are not farmers, and who may be ignorant of the value of humble bees, we may state that their great usefulness lies in impregnating red Clover, their long probosces enabling them to reach the pollen of the plant."

### TRADE CATALOGUES RECEIVED.

William Broad, Longton.—*Catalogue of Flower and Vegetable Seeds*.  
E. H. Krelage & Son, Haarlem.—*List of Hyacinths*.  
B. S. Williams, Victoria and Paradise Nursery, Upper Holloway.—*New and General Plant Catalogue for 1881 (Illustrated)*.



\*.\* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Disbudding Vine (F. J.).**—The fruiting laterals should not be more than a foot apart on each side of the rod as shown in your sketch. Where there are two or more growths reduce them to one, but not until you can see the bunches, retaining those that appear to be the best. If two laterals show equally good bunches retain the one nearest the main rod. If your Vines do not bear well, or only produce very small bunches, it might be advisable to remove every alternate rod in the autumn and train up young canes from the horizontal branches. Vines outdoors usually bear much better from young canes than from old spurs. If your Black Hamburgh Vine is healthy you may crop it as you propose, provided the bunches do not average more than a pound each.

**Heat for Greenhouse (F. M. S.).**—It is impossible for us to name a date when you may discontinue fires, as this obviously must depend on the weather. We can only say that so long as a night temperature of between 45° and 50° can be maintained no fire heat is necessary for any of the plants you name; except, perhaps, during wet weather, when a little heat with ventilation may be advisable for dissipating damp, the fire in that case being lighted very early in the morning and continued for a few hours only.

**Auriculas (R. C. D.).**—Your only mode that we can suggest of "establishing a stock of fine Auriculas" is to purchase varieties from florists who grow these flowers for sale. It is against our rules to recommend dealers, but if you write to the trade florists who exhibited at the late Auricula show they will send you a list of the varieties they have for disposal. As to books, you will find our little manual on "Florists' Flowers" useful, post free 4d., and also "Hardy Florist Flowers," by Mr. Douglas, particulars of which can be had from the author at Loxford Cottage, Ilford, Essex.

**Inarching Vine (Reader).**—If you had let the Vines alone the union would no doubt have been effected—that is, if the inarching had been properly done. It is impossible for us to say whether you should take "another slice off in the same place," as we have no means of knowing the condition of the Vines at the parts on which you have operated. You must exercise your own intelligence on this matter; but we may inform you that you may inarch the young growths when they are a little firmer, and if the work is done cleanly and dexterously, the ligatures not being secured too tightly, the union of the two growths will soon be complete. The Alicante must be encouraged to grow above the union, the growth of the Lady Downe's being proportionally checked, but not violently or without due thought and consideration, such as a gardener would give to the nature of the work in which he is engaged.

**Deutzias not Flowering (Sol.).**—The spray you have sent indicates that your plants are in a very enfeebled state, and that either the root-action is defective or the soil exhausted. We should prune them rather severely—some of them, indeed, it might be advisable to cut down or nearly so, then place them in a genial temperature, syringe them frequently, and when fresh growth commences turn them out of the pots, remove a good portion of the old soil from the roots, and repot in turfy loam and a slight admixture of leaf soil and wood ashes. Your endeavour must be to induce the production of young growths from the base, and if these are matured and not shortened fine flowers will follow. Plants in a weak state are often much invigorated by planting them in good soil in the open garden, previously removing a portion of the old soil and potting them in the autumn. You can adopt which mode is the most convenient, as by either of them the plants may be considerably improved.

**Violas for Bedding (S. B.).**—We cannot undertake to name the "best blue and best yellow variety," because all do not succeed equally well in different soils and positions. What are considered the "best" in one garden and district may only be esteemed of moderate value in another. This we have proved by experience. We can inform you that the best blue Violas in Battersea Park last year were Blue Bell and Duchess of Teck, the latter a pale lavender blue; and the best yellows that came under our notice were Sovereign and Golden Gem. You may venture to plant these in quantity; and at the same time we advise you to try other varieties in smaller numbers, and you will then find which are the best for your purpose. You will find an excellent article on Violas, including cultural notes and a list of some of the best varieties, on page 321 of the Journal—the issue of October 7th, 1880. If you do not possess this number it can be had post free from the publisher in return for 3d. in stamps.

**Housetop Gardening (J. H. B.).**—Several years ago an attempt was made to grow Peach and other fruit trees in pots on some of the roofs in Cheap-side and in other districts of the metropolis; but owing to the inconvenience of conveying soil, manure, &c., to them the practice was abandoned. Fruit, including Strawberries in pots or boxes, might be grown in such positions, but not profitably, as better produce can be purchased much more cheaply. Plants and flowers could undoubtedly be grown in glass structures on the tops of houses as well or perhaps better than in cases attached to windows and on window-sills provided proper attention were given to ventilation and watering. In a nursery at Edinburgh a span-roof of glass has been formed on some buildings, and hundreds of plants are grown in excellent condition. We have seen good Grapes grown in a loft where glass had been substituted for tiles, the Vines being planted outside and trained up the wall, then taken inside; but this was not in London.

**Ionopsidium acaule (J. F., Nottingham).**—The "dwarf-growing plant with



a profusion of pinkish-white flowers, so charming at Regent's Park four years ago" was, we think, the above annual as exhibited by Messrs. Carter & Co. It has also been grown at Chiswick, and makes a pleasing marginal line to groups of plants. The seed should be sown very thinly, so that the seedlings do not become crowded in their young state, and about seven plants should be transferred to a 5-inch pot; or the seed may be sown in 5-inch pots and the superfluous plants be drawn out, leaving those remaining an inch apart. The plants should be raised in a cool and very light frame, keeping them close to the glass, and eventually removing the lights entirely, except in stormy weather and during drenching rains. Rich soil and abundant supplies of water are requisite for growing the plants healthily. When well cultivated the plants produce a charming effect, but if either starved or drawn they have a miserable appearance. This annual grows and flowers freely in moist soil in the open air.

**Annuals Distasteful to Slugs** (*G. Watson*).—We have nothing to add to the following reply we gave to a correspondent some time ago, and perhaps before you were a reader of the Journal—"There are few plants that snails and slugs will not devour. We have observed, however, that Nasturtiums (*Tropaeolums*), *Convolvulus minor*, *Limnanthes Douglasi*, and *Venus's Looking-glass* are not so much eaten as some other annuals; but our practice is to grow what plants are desired and destroy the slugs. When the annuals are aboveground sprinkle a little dry soot over them late in the evening or early morning; this makes the plants very distasteful to the snails and slugs."

**Black Currants Unsatisfactory** (*W. J. G.*).—The bushes are in a debilitated state—probably worn out, or nearly so, by neglect or old age, or both. If you were to prune a portion of them severely, almost cutting them down, and apply a heavy dressing of manure over the roots, the branches would in all likelihood push fresh growths altogether of a more vigorous character than the portions you have sent, and the bushes might again bear good crops. To cut them all down at once would be to deprive yourself of even a moderate crop of fruit for a year or two. You would do well also to plant some young trees. Such wood as you have sent is of no use for cuttings, and you had better therefore purchase young trees, unless, indeed, you can procure cuttings from healthy bushes in the autumn. We should not hesitate to cut some of the trees down at once, we mean by this shortening all the principal branches, and fresh growths would be produced during the present season. Copious supplies of liquid manure, as well as a rich surface dressing, would induce growths to break from the old wood. By adopting this practice we have converted tall useless old trees into dwarf free-bearing bushes, and obtained from them a serviceable supply of fruit.

**Whitewash for Shading** (*M. H. M.*).—You may take off the "white glare" by adding Brunswick green for the tint required. A very good wash may be made as follows. Ingredients: 1 lb. of wheat flour, half pound of whiting, and 1 lb. of common candle or Russian tallow. Make the flour into a paste and then put in the candles while the paste is hot, crush the whiting into a powder, mix with cold water, and then add to the paste, also adding as much Brunswick green as you need. When required for use warm it in a pail and paint the glass when the sun is shining upon it. The *Rhododendron* is, we think, Countess of Haddington, but the blooms were far too withered for satisfactory identification.

**Crimson Vesuvius Pelargonium** (*Hender & Sons*).—The flowers unfortunately arrived in a very withered state, but we had no difficulty in perceiving that the colour of your "sport" is decidedly deeper and richer than the parent; the flower stem is also stouter, and truss and flowers larger than those of *Vesuvius* that you sent for comparison. This is the darkest of all the forms of the singularly sportive variety that has come under our notice, and will doubtless be valuable both for pots and beds.

**Eucharis amazonica** (*R. C. S. P.*).—As we had a suspicion that the insects to which you referred as "eating into the roots" were not the cause of the unhealthy condition of the plants, but rather the result of decaying matter at the base of the bulbs, it became necessary for us to keep the examples you sent for some time for examination and experiment. We are now able to say that the insects are not the primary cause of your plants not blooming. By drying the bulbs we have cleansed the base of the decaying matter, and find that the insects have not penetrated the healthy parts. The roots of the plants are in a very bad state—either the result of unsuitable soil, injudicious watering, or they have been seriously checked by the plants having been removed from a warm house into one too cold for them. Let the cause, however, of the decaying roots be what it may, there is only one course for you to pursue in reinvigorating the plants. Turn them out of the pots, removing the soil and every particle of decaying matter from the bulbs, washing them if necessary in warm water. When they are dry pot them in small pots filled one-third with potsherds, the drainage being protected with moss or fibre from which the soil has been shaken. The compost employed should consist of turfy loam and a little peat, but the latter is not essential, and a liberal admixture (at the least one-sixth) of bruised charcoal, a little of which crushed to powder should be placed round the base of the bulbs. The pots should be placed in a stove, and if they can be plunged in bottom heat it will be a great advantage. By adopting the practice indicated and exercising great care in watering you will promote the emission of healthy roots, and this being accomplished the plants will in time regain their lost health. You would do well, perhaps, to obtain some healthy plants from a vigorous stock, as once established in a healthy condition the plants are easy to manage; but it is not easy to "bring round" plants that are in such an unsatisfactory state as yours appear to be. If the soil is moist when used, and the pots are plunged, no water will be needed for a week beyond an occasional sprinkling with a syringe, as if the soil is kept wet fresh roots will not readily take possession of it. We think that your plants, considering their comparatively rootless state, have been much over-watered.

**Names of Plants** (*Young Gardener*).—1, *Caltha palustris*, Marsh Marigold; 2, *Alliaria officinalis*, Jack by the Hedge. (*W. E. B.*).—1, *Festuca ovina glauca*; 2, *Coccoloba platyclada*; 3, is a *Billbergia* or *Pitcairnia*, but was too withered to be determined; 4, *Maxillaria Harrisonae*; 5, *Anthurium Schertzerianum*. (*W. C. N., Devon*).—1, *Cereus McDonaldiae*; 3, *Salvia Grahami*; 4, *Kaulfussia amelloides*; 5, *Eupatorium rupestre*; 6, The Fern is not sufficient for identification; it resembles *Asplenium obtusatum*. We do not undertake to name Roses, nor varieties of any other florists' flowers, still we do not object giving the names of those we can readily identify. The bloom sent is too much expanded, and we can only say it resembles *Madame de St. Joseph*. (*W. H. R.*).—1, *Narcissus moschatos*; 2, *Narcissus nobilis*.

**Bees** (*Inquirer*).—"The Apiary" by Alfred Neighbour is a good modern work on bee-keeping. Special attention is devoted to bees in our columns, to which the leading apiarists of every "school" contribute.

**Boiling Bees' Combs** (*W. K.*).—The quantity of water is not material. If you boil the combs thoroughly until dissolved the wax will rise to the surface, and can be collected when the water has cooled.

## COVENT GARDEN MARKET.—APRIL 27.

We have been well supplied with house fruits this week, and prices have been somewhat lower, more particularly with Grapes, some very good samples reaching us from the Channel Islands. Trade improving.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines..	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges .....	½ 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	4 0 8 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples .....	½ lb.	1 0 2 0
Gooseberries .....	½ sieve	0 0 0 0	Strawberries .....	per lb.	3 0 8 0
Grapes .....	½ lb.	6 0 12 0	Walnuts .....	bushel	0 0 0 0
emons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

## VEGETABLES.

		s. d.	s. d.			s. d.	s. d.		
Artichokes.....	dozen	2	0 to 4	0	Mushrooms .....	punnet	1 0 to 1 6		
Asparagus.....	bundle	0	0	0	0	Mustard & Cress ..	punnet	0 2	0 3
Beans, Kidney .....	½ 100	1	0	1	6	Onions.....	bushel	3	6 5 0
Beet, Red.....	dozen	1	0	2	0	pickling .....	quart	0	0 0 0
Broccoli.....	bundle	0	9	1	6	Parsley..... doz. bunches	6	0	0 0
Brussels Sprouts..	½ sieve	0	9	1	3	Parsnips .....	dozen	1	0 2 0
Cabbage.....	dozen	0	6	1	0	Peas .....	quart	0	0 0 0
Carrots.....	bunch	0	4	0	6	Potatoes .....	bushel	3	9 4 0
Capsicums.....	½ 100	1	6	2	0	Kidney.....	bushel	4	0 4 6
Cauliflowers.....	dozen	0	0	3	6	Radishes..... doz. bunches	1	6	2 0
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4 0 6
Coleworts..... doz. bunches	2	0	4	0	0	Salsafy.....	bundle	1	0 0 0
Cucumbers.....	each	0	4	0	6	Scorzonera .....	bundle	1	6 0 0
Endive.....	dozen	1	0	2	0	Seakale .....	basket	3	0 3 8
Fennel.....	bunch	0	3	0	0	Shallots .....	½ lb.	0	3 0 0
Garlic.....	½ lb.	0	6	0	0	Spinach .....	bushel	3	0 0 0
Herbs.....	bunch	0	2	0	0	Turnips .....	bunch	0	4 0 0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0 0 0



## POULTRY AND PIGEON CHRONICLE.

## AGRICULTURAL IMPLEMENTS AND MACHINERY.

IN again referring to this interesting and important subject we will first notice a novelty—namely, a patent manure spreader, shown at Islington Hall last December by Messrs. Pamphilon and Co. This machine is intended for attachment to the rear of any loaded manure cart by patent connecting apparatus. The interior consists of an endless sparred traveller band, the cross-bars having short spikes so arranged as not to follow in each other's track. Over the traveller band an arrangement of bent knives revolves in the opposite direction, so as to cut up the manure as the spiked band brings it forward, distributing it on the land of uniform thickness. Above these is an oscillating cleaning fork, with a number of prongs pendant from a rocking shaft, for the purpose of preventing the knives from clogging. In front the mouth of the machine is so formed that, with a dung grapple by the man unloading, the manure can be drawn on to the endless spiked traveller band. Motion for driving the endless band and the revolving shaft is taken from the supporting wheels. The thickness of the feed can be regulated partly by the man with the dung grapple, but chiefly by the speed of the traveller. The machine has been in use for some time, and those who are using it speak highly of its merits.

This machine effects a great saving of labour, and also economy in the application of the manure, for the manure can be distributed very quickly, and with greater regularity than it is frequently done by hand labour. Another point is, that as fast as the manure is laid out it can immediately be ploughed down—a matter of importance at certain times of the year, because whilst the dung is fresh it is more easily covered and buried by the act of ploughing-in. Long dung can also be severed and more easily distributed by the action of the machine than is done by hand labour. Nor has the dung time to lie about in heap, losing moisture as well as ammonia, if the land is ploughed close behind the spreading machine. The use of the spreader in pasture land is that the action of the manure will be immediate; and the regular



distribution of the dung, even if in a long undecayed state, is of consequence, as less labour will be required for the chain harrows and roller.

Ploughs now require attention, though steam culture should generally be adopted for the fallow ploughing, and also for the heaviest and first work done on the fallows in the spring; as this not only makes all the work afterwards much lighter and easier for animal power, but lighter implements are only required to complete the spring and summer labour on the fallows intended for Potatoes and roots. Thirty years ago we availed ourselves of the light one-horse ploughs made by Howard's firm, and by its use great saving was effected in the light spring working of the land, not only in preparing and completing the tillage for Lent corn, but also for Potatoes and other root crops. About this time many persons commenced farming upon the market garden system on a small scale, in various instances tilling not more than 5 or 6 acres, and keeping only one strong active horse. These small ploughs of easy draught exactly suited the work, especially as some of the land was of a sandy and gravelly nature. These one-horse ploughs are still remarkably useful in planting Potatoes and general cultivation upon small farms.

Upon farms of 100 or 200 acres we have since had the advantage of the use of the double-furrow ploughs. All the chief implement makers sell them. The draught is quite within the power of two horses, which for farm economy should never be under 16 or 16½ hands high, with strength and substance in proportion, and in the double-furrow plough no driver will be required. The lifting-out is done in turning or at the land's end entirely by the horses. The ploughman has merely to release a lever handle, when by the onward progress of the horses the shares are lifted out of the ground, which greatly facilitates the turning. By the patent steerage we have this great advantage, that by one simple lever both the land and furrow wheels are locked or steered; the plough is therefore easily guided, even on the steepest hillsides. Practically these advantages are nearly all that we require in the absence of steam power, for when we have horses of such power as indicated each one will turn his furrow in ploughing work, and in carting work, &c., will be equal to a draught of 25 cwt. or upwards, and unless horses of this size and power are employed we cannot reap the full advantages to be derived from the use of improved tillage implements. It must not be forgotten that these double-furrow ploughs called new and convertible are capable of being changed in a few minutes into an equally efficient single plough with or without wheels. By this arrangement when the second plough is removed there are no loose parts likely to be lost. The beams are of steel tapered from end to end both in width and thickness, thereby giving lightness and rigidity. The depth of ploughing also can be altered without stopping by the ploughman using the lever. This plough is capable of another change in work, for by the removal of one plough a subsoiler may be fixed in front and preceding the plough body; the treading the furrow by the horses after subsoiling is therefore avoided, as the pan of the last furrow is broken up just before the new furrow is turned over it.

Triple-furrow ploughs are also made, for since the introduction of steam ploughs it has led the farmers, especially on light land, to desire that their ploughs should take a greater width, and the triple ploughs have been brought out to meet this requirement. In the draught of this plough three horses of the requisite strength are only required, and thus, as in the case of the other ploughs, each horse turns a furrow. By its use greater economy as well as expedition in ploughing is effected than with the double-furrow plough, into which it may at once be converted by the removal of the hinder body, and the depth of the work can be regulated by the lever as the plough proceeds, and at the ends the

plough is lifted by the same lever clear off the ground. Combined subsoil and pulverising ploughs are now much in demand; they are fitted with digging breasts and subsoil tines, which break or pulverise the soil to a depth of 6 or 9 inches below the furrow. The horse power required for this work cannot easily be defined on account of the variation of the subsoil to be operated upon. Market gardeners and farmers, however, find these ploughs very efficient implements for deep tillage; and as they are easily turned into an ordinary plough by changing the breast and removing the tines they are much approved, for practically it is quite out of the range of economy to be provided with a separate implement for the various requirements of a well-managed farm of the present day, especially when we find that market garden farming is becoming the practice in those districts where a ready sale and delivery can be obtained for the various crops to suit the requirements of the consumers of vegetable produce in the metropolis or in large provincial towns.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—All those who have employed steam power in the early cultivating of the fallows are now getting forward with the tillage; and the Potato planting having been finished, the Mangold seed should be drilled without further delay. The safest plan is to sow the Mangold seed as soon as possible after the first week in April, and all we have to fear is that in case the weather should continue dry the seed may not germinate; at least, that was the case last year, and a large portion of the plant was deficient in consequence. Sometimes we have seen a crop of mixed Mangolds and Swedes answer well, especially where fattening cattle are fed in the boxes in the autumn; the Swedes being very early become ripe and fit for use at an early period. They are also useful for a milk-selling dairy, the Swedes being a good supplement in case the autumn grass becomes scarce. The early-sown Barley and Oats, as well as Peas, are now looking very strong; the late mild weather and timely showers caused all seeds to germinate with great regularity this year. We do not advise sowing Barley after the 20th of April, but prefer to sow white Waterloo Oats and Barley mixed. The Rye crop is forward this year, and is now being cut up for cattle or being fed off on the land with sheep. In either case this land where clean may be sown with Mangold, Swedes, or hybrid Turnips for early feeding. In case, however, dry weather should prevail it is better to plough and drill the seed the same day, because when the ploughing, working, and drilling are done simultaneously the seed is sure to vegetate, especially if the surface is rolled with the ring roller. Summer Vetches for successional use for feeding cattle or sheep may now be sown with advantage, particularly upon strong soils intended for Wheat, as we find the ground comes in good condition after being cropped with Vetches and fed off by sheep eating cotton cake; also, in case the land is outlying, as no dung carting will be required, because a dressing of Peruvian guano at seed time after the green crops have been fed off will insure a good crop of Wheat in ordinary seasons. Upon this plan also the last ploughing and seeding may be done in good time. Farmyard or box dung should be used nearer the homestead in order to save carting—a matter of much importance not only to the labour bill but in the saving of time in laying out, &c.; in fact, as a rule the outlying fields may be dressed by sheep with great advantage, either in the case of feeding-off green crops or early roots.

*Hand Labour.*—This will still be required in connection with tillage operations, such as couching, carting, and heaping or burning on the land. As the first week in May is the best seed time for the cattle Carrots the seed should now be prepared by hand-rubbing with the harvest gloves, if it has not been already done, as this work can often be done on a wet day when the men or women cannot work out of doors. It is, however, an important method of preparing the seed, because where the burr has been rubbed off properly the seed will then pass with great regularity through the drill, quite as much so as Turnip or Mangold seed. Carrots of the White Belgian variety may be said to be best for a full crop for cattle-feeding; but the Red Intermediate are of rather higher feeding value, and they may sometimes be sold in the market when vegetables are scarce, like they have been during the past few months. There is, however, the labour question to be considered, for these Red Intermediate sorts are short and clean grown when the land has been properly tilled and manured; and although they will come large in size, yet they do not root deeply in the soil, and are easily taken up; therefore the cost of raising the crop is reduced to a minimum.

*Live Stock.*—The dairy cows are now out grazing at daytime, but our plan is not to let them lie out at night until the second week in May, for we often have night frosts up to that time, and sometimes later; and when the animals lie out at first they should have the driest and highest pasture on the farm—at all events it should be situated above the fog level, for it is the moisture floating in the air which does the mischief when accompanied with frost. These remarks apply to other cattle as well as to dairy cows, for it is found that

well-bred and well-fed young cattle are very apt to suffer from the quarter ill, unless great care is taken with them on their first leaving the cattle courts and yards in the spring. The fat tegs or hoggets are now being shorn before being sent to market, especially in the event of their being ripe fat, but those in only moderate condition will sell best in their wool for another few weeks. Great care will also be required in washing them in readiness for shearing, for when washed in a pond or stream it requires great care so that no animal may remain in the water beyond his turn, as we have known sheep lost when taking in a quantity of water internally, and particularly when the animals are very fat, because they are then in a helpless state. We prefer tank-washing where the tanks are conveniently constructed for the purpose. The weaning of calves will now be going on, and in case they are to be steered and fattened at two years old they cannot be too well kept from the first, and should receive after weaning not only the best advertised substitutes for milk, but also cake and beanmeal; and until they are several months old they should either be kept in yards and sheds, or otherwise in a dry sheltered paddock with night quarters adjoining, eating dry fodder, such as *Trifolium* and Vetches, until the earliest roots or Kale are ready.

#### VARIETIES.

**NIGHTINGALES NEAR LONDON.**—Will any of your readers kindly tell me where I can hear the nightingale within a few miles of London? All the time I have lived in Dorset I have never once heard a nightingale, and I believe no one else has either. But when I was living in Sussex I used to hear them sing both by day and night. I am particularly fond of listening to these lovely vocalists, and if anyone will tell me a good place near to London where I can once more hear them I shall be very much obliged to them.—WYLD SAVAGE.

— **THE BANTAM CLUB.**—The long-talked-of Bantam Club is, we understand, really in process of constitution. A meeting for the appointment of officers and consideration of rules is to be held at the Charing Cross Hotel on May 2nd, at 1 P.M.

— **TOY PIGEONS.**—A circular is being sent round to fanciers of German Toy Pigeons about the establishment of a Society to promote the breeding and exhibiting of such varieties. It is stated in the circular, that "In addition to this it has long been felt that some definite standard should be determined upon, by which the merits of each breed could be arrived at in a more satisfactory manner." Names of those wishing to become members of such a Society should be sent to Mr. W. H. Marton, 1, Glenfall Villas, Painswick Road, Gloucester.

— **THE MECCHI FUND.**—This fund was started on the death of the late owner of Tiptree Hall, with the view of making a suitable provision for Mrs. Mechi and her daughters, through the instrumentality of the Duke of Bedford, the Earl of Leicester, Mr. Samuel Morley, M.P., Mr. James Caird, C.B., and other influential friends of the deceased gentleman, and now reaches £4400. In order, however, to secure an income to Mrs. Mechi of not less than £200 a year, an additional £700 is required, and this sum the Committee are endeavouring to raise by a further appeal to the general public. The Government, in recognition of Mr. Mechi's public worth both as a spirited and scientific farmer and a commercial man of unimpeachable integrity, have advised Her Majesty, through the Prime Minister, to make a grant of £200 from the Royal Bounty Fund to the subscription that is being formed; and the Dukes of Devonshire and Bedford, the Earl of Leicester, and Mr. Samuel Morley have each contributed £100 to the same object. Other sums varying from £50 to 10s. 6d. have also been remitted from different parts of the country without distinction of class or profession. After Mr. Mechi's death a public meeting was convened at the Mansion House, under the presidency of the Lord Mayor, to testify to the liberality and intelligence with which, before he devoted himself so exclusively to agricultural pursuits, he had served the offices of sheriff and alderman, and the sum of £600 was subscribed for his widow on the spot. Before the termination of his City avocations, however, circumstances connected with the failure of a bank of which Mr. Mechi was a principal director, and to reimburse the creditors of which he voluntarily relinquished a large fortune, had obliged him to resign his aldermanic gown and the honour of the mayoralty in the following year. These incidents in his life, added to the great philanthropic work he carried through in founding and establishing the Royal Agricultural Benevolent Institution, now one of the wealthiest and most important

clarities in the United Kingdom, will, we doubt not, when they are brought to the knowledge of his countrymen, speedily operate in procuring the comparatively small sum still required in the interests of his widow and family, especially when it is remembered that their present destitute position is in a large degree owing to Mr. Mechi's long and zealous attention to matters of public concern. The Marquis of Huntly, Chairman of the fund, and the Hon. Secretary, Mr. C. B. Shaw, will be glad to receive and acknowledge contributions addressed to them at 26, Charles Street, St. James's, London, S.W.

### POULTRY AND PIGEONS

#### ROYAL DUBLIN SOCIETY'S SHOW.

IN consequence of the removal of the Society from the premises in Kildare Street, Dublin, in which their shows have for so many years been held, to the new premises at Ball's Bridge, the usual winter Show was not held. To make up as far as possible for this loss, classes for poultry and Pigeons were added to the schedule of the spring Show, which opened on Tuesday the 19th inst., and lasted four days.

The premises at Ball's Bridge are considerably larger than the old buildings in Kildare Street, and a portion of the spacious gallery round the main hall was allotted to the poultry. The light was admirable, and the substitution of more modern wire show pens for the old wooden ones formerly used was a great advantage. If on a future occasion, as on this, the system of showing pairs of hens together be adopted, it would be better that the pens should be set up at their full width and not narrowed by overlapping the fronts some inches, as they were on this occasion.

It is, we believe, the first time in which the cocks and hens have been shown separately here. This is a great improvement, but we think it was rather a mistake to make the classes for two hens instead of one. No doubt it is a greater test of the real merits of a yard matching a pair of hens for the show pen than merely sending out a single bird, but the system must of necessity injuriously affect the number of entries.

As the season of the year is now somewhat advanced, we do not propose to give a detailed report of the Show, but shall merely make a few notes upon some of the leading birds.

The schedule opened with Silver-Grey Dorkings, which were not so well represented as we have seen them in former years, the cocks especially being deficient in size. The first-prize bird shown by Mr. Shaw was shapely and short in limb, but hardly so silvery in colour as Miss Drevar's, which, however, was not in very good condition. This bird, we regret to say, was very severely wounded in the comb on the second day of the Show, we fear maliciously. There is great want of supervision on the part of the Show authorities in this department; and while upon the subject we may mention that the laxity which prevailed upon the removal of the birds at the close of the Show exceeded anything of the sort that we have seen elsewhere. The gallery was crowded with visitors, and each exhibitor seemed to be at liberty to remove his birds from their pens without the supervision of any responsible person. It says much for the honesty of the exhibitors that the facilities for theft thus afforded do not appear to have been made use of.

The second prize Silver-Grey Dorking cockerel had white in his breast and tail, and should on that account, we thought, have been passed over. The hens shown by Messrs. R. P. Williams and D. Shaw, to which first and second prizes were awarded, were good in size and colour, but still hardly up to what we have seen here in previous years. The Coloured Dorkings were not numerous, but were of very high quality, first and second in each class going to Mr. W. H. King, and third to Messrs. Smyth. The general high quality of the birds may be indicated by the fact that the Palace cup cockerel here, as at Belfast, stood behind a bird bred in the Londonderry yards, but which has now changed hands.

Spanish were fairly well represented, the chief prizes going to Messrs. J. Barlow, Cannan, O'Reilly, and Henry. The birds, however, were as a rule hardly in show condition, which, considering the season of the year, is not to be wondered at.

The Brahma classes were upon the whole far the best we ever remember to have seen in Dublin. In Light cocks Mr. R. Mitchell's bird, which won the cup at Birmingham, here stood second to a large clear-coloured bird of Mr. Cannan, somewhat long in leg and hollow in breast. The Birmingham bird looked smaller and narrower than when we last saw him. Had he been in first-rate condition he would doubtless have stood first. In the hens Mr. Mitchell stood first with his well-known hen mated with a somewhat inferior companion, Mr. C. Graham taking second with a large shapely pair of pure colour fairly matched.

Mr. Mitchell's Dark Brahma cock, first at Hull, Wolverhampton, and elsewhere, here added another to the list of his honours; second going to Mr. Comyns' shapely bird which won the Cambridge cup as a

cockerel and was third at Wolverhampton this year. Mr. Cannan's third-prize bird was of good size, neat in head and good in feather, though a trifle narrow in saddle. The class, which numbered fifteen, contained several other first-class birds which have won their laurels elsewhere. The pair of hens shown by Mr. Cannan were wonderfully short in leg, large and shapely, but were hardly so good in marking as Mr. Comyns' second and third-prize pairs.

The Cochins were strong classes, especially the Buffs. Mr. Cannan took first with a squarely-made, heavily feathered, Lemon cock, very even in colour; and the same gentleman also showed the winning pair of hens, which, however, were hardly so good in colour as the cock. The other prizes for Buffs went to Messrs. Mitchell, C. Brown, and S. Haud; and the first-named gentleman showed a wonderfully fine hen considerably ahead of anything else in the class, but thrown out by being matched with a very inferior one.

In the class for any other coloured Cochin cocks Mr. Cannan stood first and second with large Partridge birds, the former, however, very coarse in comb; Mr. Milner winning the third with a good White. Several other good Partridge birds were shown. Mr. Robertson's winning Partridge hens were shapely and very nicely marked. Second went to moderate Blacks, and third to a pen of Partridge containing one very good bird.

The Game classes, as is usual in Dublin, were not numerous, and contained nothing very remarkable. The chief prizes went to Messrs. Cannan, E. S. Snow, and F. Robertson.

Hamburgs had two fairly filled classes, which were better than one usually sees at this Show. The two firsts went to Mr. Cannan for Golden-spangled, the second for cocks to Mr. J. Aird for Golden-pencilled, and the second for hens to Mr. S. Mowbray for Blacks.

Polish, like the Hamburgs, were all shown together, and, as is usually the case, the Golden had the best of it. The classes were large, and we think might fairly claim a division another year. Messrs. Milner, D. Sullivan, and Cannan won the prizes with large-crested birds, all, however, showing a considerable amount of white in crest. Miss Drevar showed some White-crests, which, however, were hardly as good as we have seen from her yards.

The French breeds were not very largely represented, and the separate classes for La Flèche only produced two entries each. These were shown by Messrs. Field and O'Reilly, and were quite up to the average quality of the breed. Houdans were more numerous, but only of fair quality. Here two prizes went to Mr. Cannan, and the others to Messrs. Field and Rogerson. The first-prize Crève-Cœur cock was a large shapely bird, short in leg and in fine condition, exhibited by Mr. S. Hand. The second prize in this class, as also the first in hens, went to Mr. Cannan for good average birds. The only other pair of hens shown were disqualified on account of their crests being dyed.

In the Variety classes first for cocks was awarded to a good Malay of Mr. Henry, and second to a very neat Brown Leghorn of Miss Brinkley. The class for hens only brought out one entry of Malays.

In Bantams Game alone had classes. These were fairly filled, but contained nothing of very special merit.

The classes for Turkeys and Geese were only moderately filled, but some wonderfully fine birds were shown by Messrs. J. & W. Birch, R. H. Metge, and S. Mowbray, to whom the chief prizes went.

The three classes for Ducks were well filled. The prizes for Rouens went to Messrs. Birch and T. Robertson, the drake shown by the last-named gentleman standing second on account of his great size, although much too light in colour. Messrs. Charley and D. Sullivan took first and second in the Aylesburys, similar honours in the Pekins going to Messrs. Birch and O'Reilly. The bills of the Pekins were hardly as rich in colour as we have seen them.

Pigeons are never very strongly represented in Dublin, as the Society, being essentially an agricultural one, does not seem to think it worth its while to sufficiently encourage these classes. The most successful exhibitors were Messrs. G. A. Kilroy, H. Yardley, W. A. Montgomery, A. G. Shaw, J. H. Hutchinson (whose Trumpeters call for a special word of commendation), Loftie Stoney, A. Jennings, J. Milner, and Mrs. E. Seale, who stood first and second in a good class of Fantails. The prizes were awarded by Messrs. E. Hutton, R. W. Boyle, and J. F. Bomford.

### TOY PIGEONS—ICE.

ICE PIGEONS are not mentioned in the old Pigeon books; even Brent, with his great knowledge of "Toys," only gave a brief account of them. They have been imported from Germany, or at least through German dealers. In form Ice Pigeons are not striking, being very like the common dovehouse bird, though some of the best are feathered on the legs, and then resemble Swallows and Letz in appearance and flight. Their special beauty is their colour, which is mainly a delicate French grey. They have little of the ordinary iridescent breast colour of Pigeons, but appear to be powdered all over like the neck of "powdered" Owls, which gives them a peculiarly soft and frosted look, hence their name. Some are entirely self-coloured without any marking whatever, though there is always some difference of shade between the hard and soft feathers; but the majority are marked, and that in very various ways.

1, The type most usually seen have their wings barred, the

bars being double, of narrow black and white lines—that is, when the birds have their adult plumage, for in their early days such bars are always confused and brown. It is worth while plucking one of the feathers which form these bars to see their beautifully accurate marking. 2, Others have a similar black and white line also across the tail. 3, A third variety have their wings spangled with black and white, their tail and flight feathers are then darker than the rest of their body. Birds so marked are called Siberian or Ural Ice, a fancy name we suspect, and not really connected with their origin. All these three varieties are seen with both clean and feathered legs. There is a little difference of opinion as to the colour of their eyes, some fanciers thinking dark, some gravel eyes the proper thing; our own best birds have had the latter.

Ice Pigeons, like most of the breeds more striking in feather than in form, should be seen in numbers to be appreciated. We once had a considerable flight of them, and the softness of their look when feeding together was very pretty; they contrasted, too, well with our flight of dark metallic-looking Archangels when the two lots were mixed. Ice Pigeons, like other varieties of the dovehouse Pigeon form, are excellent breeders and parents—at least we found them so, and in two or three years raised a considerable stock from a single pair, though we now no longer have them. Well-marked birds can be obtained at moderate prices, and so they are a variety suited to fanciers who cannot afford to begin with birds of the worth of a first-rate Jacobin, Owl, or Turbit. Hitherto at exhibitions they have always had to compete in "variety" classes with almost innumerable other breeds; and consequently we have often observed beautiful Ice Pigeons passed over for more startling novelties, especially the lately imported eastern frilled breeds. If, however, the Society for the Encouragement of the Breeding of German Toys, which we elsewhere notice, should actually be formed we may hope to see classes for this and many other pretty kinds, or at least for groups of them, which have some similarity of characteristics.—C.

### OUR LETTER BOX.

**Buff Cochins** (*Young Gardener*).—You will hardly get birds of any value for the price you name. We cannot recommend you to any particular breeder, as it is contrary to our rules.

**Ducks for Market** (*Idem*).—We cannot advise you to send the ducklings to London unless they are prime birds and well dressed. Can you not dispose of them to advantage nearer home? The Aylesbury trade is a special one carried on by persons who understand the details of the business, and who know to whom they can send their birds with confidence. Single consignments are seldom so well treated as those from regular customers.

**Distinguishing a Cock from a Hen Pigeon** (*Perplexed*).—The cock is bolder, more prone to fight, coos louder, is thicker about the base of the beak and neck. In playing he turns round and round, which the hen rarely does. The hen when cooed to twinkles her eyes, seems to swallow, raises the shoulders of her wings, and curtsies to the cock. Two cocks, also two hens, will occasionally pair, and go through all the actions of a pair as far as possible; but two cocks will also coo after other Pigeons.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. April		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	17	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
		29.995	49.8	48.1	N.	47.4	67.8	38.5	116.2	33.0		
Mon.	18	29.969	57.0	48.6	N.E.	48.6	66.3	43.7	120.5	38.6		
Tues.	19	29.991	40.0	35.6	N.E.	49.2	43.9	38.3	77.6	35.7		
Wed.	20	29.883	38.2	35.0	N.	46.9	45.6	34.	96.3	31.2		
Thurs.	21	29.766	39.0	35.9	N.W.	45.0	47.8	27.3	98.4	24.3		
Friday	22	29.758	44.7	38.2	N.W.	44.7	55.3	.2	113.9	27.7		
Satur.	23	30.080	44.4	40.0	N.W.	44.7	55.0	34.8	112.6	27.3		
Means.		29.920	44.7	40.2		46	55.0	35.7	105.5	31.1		

### REMARKS.

17th.—Very fine, warm, with bright sunshine, throughout; first butterfly seen.  
18th.—Fine, with bright sunshine; cold wind and much dust; high wind at night.  
19th.—Cloudy and cold.  
20th.—Overcast and cold; slight showers of sleet; sunshine at short intervals.  
21st.—Cloudy and cold; occasional very slight showers of snow, and gleams of bright sunshine.  
22nd.—Generally overcast, with bright sunshine at intervals; slight showers in afternoon.  
23rd.—Morning bright and sunny; overcast in afternoon; rain in evening and night.

Temperature much below that of the preceding week. A cold week for the time of year.—G. J. SYMONS.





5th	TH	Royal Society at 4.30 P.M., and Linnean Society at 8 P.M.
6th	F	Royal Institution at 8 P.M.
7th	S	
8th	SUN	3RD SUNDAY AFTER EASTER.
9th	M	Royal Geographical Society at 8.30 P.M.
10th	TU	Royal Horticultural Society—Fruit and Floral Committees at
11th	W	Society of Arts at 8 P.M. [11 A.M.]

### CLEMATISES IN POTS.

HERE can be no doubt of the increasing demand for Clematises, and their usefulness and beauty for planting to cover old walls or ramble over ruins and fences, as when in bloom they are unrivalled. Their cultivation in pots as decorative plants appears to be somewhat neglected in private establishments; yet few flowering plants are more effective indoors than these are when well grown, as with a good selection of varieties and judicious preparation of the plants for forcing, a supply can be maintained from February onwards for several months. Where flowering plants for decorative purposes are required in early spring, Clematises should find a place. For room decoration where plants in 8 or 10-inch pots can be employed they are very beautiful, and last nearly as long in light positions as if in the conservatory provided no gas is employed.

Propagation is effected by grafting, which can be readily accomplished. They are worked upon roots, which operation is simple, and with but little experience a number can quickly be obtained. I was told a short time ago that some growers employ roots only from a particular variety, as the scions are more readily worked upon it than upon any other, and succeed much better in poorer soil. The roots from any variety may, however, be employed, and when potting large plants a strong root or two may be taken off each, or if good-sized plants are growing outside it is easy to obtain a number of roots. The old Clematis Flammula produces them freely. Each root must have a few fibres attached, and should be from 6 to 9 inches in length. They can be grafted any time when the wood is young and a little firm, but not too hard. The roots can be kept for a long time if necessary by placing them amongst moist soil or cocoa-nut fibre. Wedge-grafting is the system principally adopted. The scion should have one pair of leaves, and the wood be cut with a sharp knife on each side like a wedge. Split the root down the centre, and place the scion in so that the outer bark of it and the root come in direct contact. Make the scion secure to the stock with matting or worsted and then pot in 2-inch pots, employing a light sandy soil. The roots should be covered rather deeply with the soil, afterwards placing them in a close frame or under hand-glasses where a temperature of 60° to 65° can be maintained. They must be well shaded during bright sun, and be slightly syringed at night: the lights can be lifted and placed down again in the morning. As soon as the scion has become united to the stock more air must be admitted, gradually hardening the plants and exposing them to more light. They can be placed in 4 and 5-inch pots according to the progress

they have made, and when they have commenced rooting in the new soil they can be finally hardened and grown outside. By autumn some of the plants will be as large as those frequently obtained from nurserymen, but as a rule the plants in many nurseries are kept a second year.

My object in describing the system of working Clematises is because amateurs who have a greenhouse delight in raising a plant or two by means of grafting or otherwise. There can be no doubt that they could with a little perseverance soon work a few Clematises, especially if they are in possession of a handlight or two, which could be placed inside their house and be kept close and shaded as directed. The propagation of Clematises does not appear to be so well understood by many gardeners, but in many private gardens there is not the time to devote to such work; therefore, the only course left is to procure them ready worked. If the plants are in 5-inch pots when obtained, and are well rooted, they should be transferred to 7-inch pots. The pots should be well drained, the old drainage being removed and the roots disentangled. This operation will cause no injury, as they are strong-rooting plants. Potting is best done a short time before the plants are started into growth. A shift into a larger pot every year according to the progress they have made is sufficient until they are placed into 10 or 12-inch pots, which are large enough for decorative purposes. When in the last-named size annual potting is still recommended—that is, by removing a portion of the old exhausted soil, renewing the drainage, and again placing them in the same sized pot with fresh soil. The soil cannot be too rich; good rich loam, a third of decayed manure, and coarse sand to render the whole porous will suit them well. While growing Clematises require liberal applications of water at the roots, and in no stage should the soil be allowed to become very dry. When the pots are full of roots stimulants can be liberally supplied.

After potting, if the plants are placed in a temperature of 45° to 50° they soon commence growing. The young plants should be supported with an upright stake, and if convenient be placed so that their growth can be trained under the roof of a plant house. If strings are taken from the centre support and secured to the roof of the house, and each young shoot trained to them, the growth will be more rapid, and ripen better than if trained round four or five stakes in the pots. When the wood is nearly mature the shoot can be tied to stakes and the plants placed outside, where they may be allowed to remain until the approach of frost, and then be protected in a cold frame or house.

The earliest-blooming varieties of the Patens section—of which Lady Londesborough is the type, one of the freest, earliest, and best for forcing—will, if gently started at the commencement of the year, produce a few flowers in the spring. This season the plants should produce a number of growths and advance rapidly if these are again trained to strings as directed for the first season. At the close of the second season they can be trained upon small balloon-shaped trellises. This section furnishes the most varieties suitable for pot culture, especially for early flowering during February, March, and April. Most of the varieties flower profusely, and require no pruning, as the flowers are produced on the previous year's wood. There is but little difficulty in inducing plants to flower early; one or two seasons' early starting is sufficient. Our plants this season commenced growth in a cold frame

towards the end of November. The following varieties are arranged in the order they flower:—Lady Londesborough, Standishii, Miss Bateman, Albert Victor, Lord Londesborough, The Queen, Sir Garnet Wolseley, Fair Rosamond, and Sophie flore-pleno; the two last are not very free with me, but distinct and worth growing.

The Florida section contains many that succeed well in pots, but are not so free as those mentioned above, except Fortunei, a double white sweet-scented variety, John Gould Veitch, and Luey Lemoine.

The Lanuginosa varieties—some of which produce enormous flowers (for instance, Henryi and Lawsoniana)—would do well in pots for later blooming, and the size of their individual flowers compensate for them not being produced in such numbers as the others.

The Jackmanni forms are, in my estimation, best adapted for outdoor planting or late autumn work in pots, and should be subject to pruning, whether in pots or planted out.—WM. BARDNEY.

#### A DEEP RICH LOAM.

WHAT is a deep rich loam? It is a soil of great fertility, consisting largely of clay with smaller quantities of quartz and sand, and a considerable proportion of decomposed vegetable matter. It has been defined as "a soil compounded of various earths;" and the definition is a good one, eminently calculated to encourage those who are struggling with the difficulties arising from a poor soil which they hope to improve by repeated dressings of manure, and whatever else may be available that is calculated to impart fertility and a sufficiently close resemblance to a rich if not a deep loam. This is an arduous undertaking, but without the slightest uncertainty, for the condition of the crops and the general results obtained yearly afford the clearest indication of the condition of the soil; and if the work of improvement be rightly carried on, each year should witness a distinct and marked advance.

In the selection of the site for a kitchen garden the nature and condition of the soil are almost as important as the situation. The appearance of anything found growing upon the land generally affords some indication of its state of fertility, but in all doubtful cases we ought not to rest content with anything short of actual analysis. In proof of this I may give an instance of one of my own blunders. Some years ago, having to make a Vine border and stations for fruit trees in a poor thin soil, I had to look about for the best soil within a reasonable distance. In a valley hard by a stream of water I found a large deep bed of dark red soil—so deep that a pole could be thrust down into it some 15 feet, and a strong rank growth of grass seemed to show ample proof of its richness. No hesitation was felt, therefore, in using this soil for the required purpose, in full confidence of successful results; and certainly for a time all went well, both Vines and trees growing with remarkable vigour and freedom in the broken sods of the turfy top spit mingled with some of the red ferruginous soil taken from the deep bed beneath it. But in due course the fictitious fertility imparted by the decaying turf became exhausted, and then the poverty of the soil became apparent, for despite liberal top-dressings of rich manure there was an annual falling-off in the condition of the Grape Vines, except in one border originally made very shallow by way of experiment, so that the roots were able to reach and spread freely in the top-dressing of manure. In the deep borders the root action was weak and sluggish; for despite an abundant admixture of bones, the soil contained the elements of fertility in so trifling a degree that the roots first attracted into it by the turf gradually perished, only a few being found alive when it was eventually removed.

The compost used to renovate the deep Vine borders is a singular one, consisting of anthills chopped up and mixed with some old well-decayed dung, bones, and mortar rubbish. Such fine anthills I have never before seen; they had probably been sixty or seventy years in construction, many of them being a yard in diameter and nearly 2 feet high. Talk of upland loam! what soil was ever so admirably aerated and sweetened as this? It was a spongy mass abounding with grass roots, and the colonies of ants might be numbered by tens of thousands, forming in themselves no mean addition to its enrichment. Sufficient soil was taken up and mixed with the anthills to correct any undue tendency to lightness, and I anticipate excellent results from it.

Reverting to the original soil of the border, I very well remember two gentlemen calling upon me while it was being carted from the valley—one of them famous for the quantity and quality of his Roses, and the other almost equally so for his Pine Apples. Both

exclaimed that they should like to have such a soil for their favourites, and both may be assured that they have no reason to regret that their wish remains ungratified; for it was subsequently discovered that this soil of so tempting an appearance and so soft in texture that it crumbled lightly at a touch, consisted absolutely of silt brought down during storms by the flooded waters of the stream from the uplands and deposited in the hollows and flat spaces of the valleys. It had probably laid there for hundreds of years, and had gradually acquired its dark red hue from an ochreous deposit of spring water slowly percolating through it from an adjacent bog. I am aware that alluvial soils formed in this way are generally very fertile, but in order to be so they must consist very largely of particles of rich soil or vegetable matter, but in this instance the principal element was the poor silicious soil of Ashdown Forest.

A deep rich loam is generally to be found in perfection in very old kitchen gardens rich from the culture and care of several generations of gardeners. To would-be improvers of such a soil—and there are such—one may well inquire, What are you going to do? and how do you propose doing it? Take away some of the old soil and replace it with upland loam, as I once heard gravely suggested? Why you might as well offer gold for silver, or old lamps for new ones! Rather, much rather, guard and keep every particle of the old soil; stir it deeply, throw it up roughly in ridges early in autumn, so that as much of it as possible may be exposed to the influence of winter; dress it freely with lime fresh from the kiln if it prove at all sour or inert, and bountiful crops will be obtained.—EDWARD LUCKHURST.

#### BRIEF NOTES ON PLANTS.

COOL Orchids have only one fault, and it is a serious one with the great majority of gardeners—they cannot be readily propagated; consequently they are too expensive even at the cheap rates for which many can now be purchased. Many owners of gardens object to paying more than a few shillings for a single plant, and some gardeners have the same feeling. A fixed sum is paid every autumn for spring-flowering bulbs, which are regularly thrown away after they have borne a crop of flowers. Why should not an equal amount also be spent annually on Orchids, which, if expensive at first, are always increasing in value and usefulness?

Mr. Taylor's method of striking cuttings of softwooded plants is a very good one. I have employed a similar system for the last two or three years, the only difference being that I do not take any trouble to exclude air. Ordinary boxes are employed, and after the cuttings are inserted as thickly as possible two large panes of glass are placed over each box. The boxes are placed on the pipe in a forcing house, and thus Lobelias and Iresines strike in three or four days without any loss. It is, however, necessary that the plants from which the cuttings have been taken should have been grown in heat.

Our Alternantheras did not pass the winter well, and in order to raise a stock of healthy plants for propagating later on all the cuttings which could be had were taken and inserted. They died in scores, and it was not until others were inserted, and which damped off at the soil level in the same manner, that the cause was discovered. The sand used, instead of having been laid up for two or three years, was fresh from the seashore, and directly the plants and cuttings were transferred into other sand the losses were stopped.

A note on Pteris tremula was inserted in a late number of the Journal. I find it one of our best "cutting" Ferns. P. serrulata and its crested forms are also of great service for cutting from, while one of the best decorative Ferns is to be had in P. longifolia. Another useful species is Polystichum proliferum, of which small plants are sold extensively in the Edinburgh markets. These are all common, easily grown, and of the greatest value from a decorative point of view.

This spring our plants of Richardia æthiopica were placed on a vinery border, as being the only suitable position which could be found at the time. To protect the border from the water escaping from the bottom of the pots a large saucer was placed under each, and as a consequence we have secured from two to three times as many spathes as we did when saucers were not used. The difference is quite astonishing. The plants are regularly supplied with chemical manures, and the saucers may have been useful in retaining these.—R. P. B.

BIRDS AND FRUITS.—The benevolent notion that wild fruits are always provided in increased quantities as a provision for the small birds in a hard coming winter, has this past season been

dispelled in a rather rude fashion, as may be gathered from the following notes: In 1880 nuts of all kinds were scarcer by far than we ever remember to have noticed. Whitethorn was unusually shy in flowering, and consequently in fruiting, haws thus being conspicuous by their absence. Sloes fruited very slightly indeed, which is curious, as it was by no means a bad year for Plums. Indeed, but for these the poor wasps would have had but a sad time of it, as Apples, Pears, and wall fruits were far from plentiful. The only hedge plant that bore even a moderate crop of berries was the Privet, which could hardly have been designed to eke out the food of the small birds, as but very few of these care for Privet berries.—JAMES BUCKMAN (in *Science Gossip*).

### GRAPE HYACINTHS.

SEVERAL of the beautiful little bulbous plants included in the genus *Muscari* are among the oldest of introduced plants now grown in gardens, and are still favourites wherever they are known. Clumps of these are often seen in old gardens, where they are rarely disturbed except to keep the fast-spreading species within suitable bounds, and in such positions flowers are produced so freely as to prove useful for cutting, supplying shades of blue that can be scarcely equalled when the flowers are at their best, as the *Scillas* are then nearly over. I have memories of Grape Hyacinths grown in large beds which in April and May formed masses of the loveliest blue tints, invoking the admiration of all who saw them. Unfortunately they are now rarely seen in such profusion except in a few nurseries, and then the formal lines in which they are planted detract from their beauty. They are certainly to some extent neglected, but why it is not easy to discover, as their culture is simple enough to enable anyone to grow them satisfactorily wherever a moderately sheltered position and a light rich soil can be afforded them, and there are few gardens in which these requirements cannot be provided. By growing the bulbs in pots excellent results can be obtained, for if placed in a frame during the winter flowers are produced several weeks before the plants outside are in bloom. When treated in this way they are extremely useful for arranging in the greenhouse or conservatory, a few pots of *M. botryoides* and the white variety being charming in the front row of plants on the side stages in such structures. Another good quality the *Muscari* possess is the readiness with which they can be increased; in fact some appear to spread too rapidly in particularly favourable positions, and then a little difficulty is experienced in restricting them to their proper quarters. However, this is more the exception than the rule. When it is desired to increase the stock the old bulbs should be lifted, the young offsets being removed and planted in fine soil, where they will grow quickly and soon reach flowering size. Except for this purpose it will not be found necessary to disturb the beds very often unless the plants become crowded, as they flower more freely and vigorously when they are well established. Some of the most beautiful species are briefly described in the following notes.

*M. botryoides*.—One of the old forms that were known to Gerard, Parkinson, and other writers of the sixteenth and seventeenth century. It is an early-flowering species, bearing globose bright "skie coloured" flowers in comparatively large racemes usually about 6 inches in height, the narrow leaves being of similar length. There are several varieties, some considerably larger than the type; but the best is the white form *M. botryoides album*, which has neat racemes of white flowers, affording a pleasing contrast with the ordinary blue form, especially when grown in pots as advised above.

*M. comosum*.—Another long-known species, rather stronger-growing than the last, frequently reaching a foot in height, and with long racemes of purplish blue flowers. Parkinson describing this among the other forms observes, "The whole stalk with the flower upon it doth somewhat resemble a long purse tassell, and thereupon divers gentlewomen have so named it." It is, however, chiefly remarkable for the extraordinary variety known botanically as *M. comosum monstrosum*, and popularly as the Feather Hyacinth. This bears a large plume-like raceme of flowers, the corollas of which are cut into long narrow divisions, imparting a peculiar and yet graceful appearance to the plant.

*M. racemosum*.—This is the most commonly seen *Muscari*, for it is one of the cottagers' favourites, at least in some districts, where there is scarcely a garden without it, nearly rivalling in abundance another common but much-appreciated plant in small gardens, the Thrift. It is known as the Starch Hyacinth from the peculiar odour of wet starch which the flowers possess. These are borne in compact racemes 6 inches or more in height, and are of a deep bluish purple tint.

*M. Szovitsianum*.—A comparatively modern introduction in-

cluded in the same section as the foregoing species—namely, the true Grape Hyacinths, or the *Botryanthus* section of the genus *Muscari*. It has a very compact raceme 6 inches high, with bright blue globular flowers; the corolla having six small tooth-like divisions, which are white, and agreeably relieve the fine blue tint of the other portion. This succeeds admirably in pots; and the specimens recently exhibited by Messrs. Osborn & Sons of Fulham at Regent's Park and South Kensington were greatly admired by many visitors; and it was remarked that among all the beautiful plants shown on both occasions there was not one which possessed flowers of such a bright and pure blue colour. At the Fulham Nursery the plants are grown planted out in a border with the other species, and the accompanying woodcut represents one of these of the average size.

Near these are several recent introductions that are as yet but little known, and chiefly confined to the large collections of hardy plants and bulbs. One of the best is *M. Heldreichi*, with a

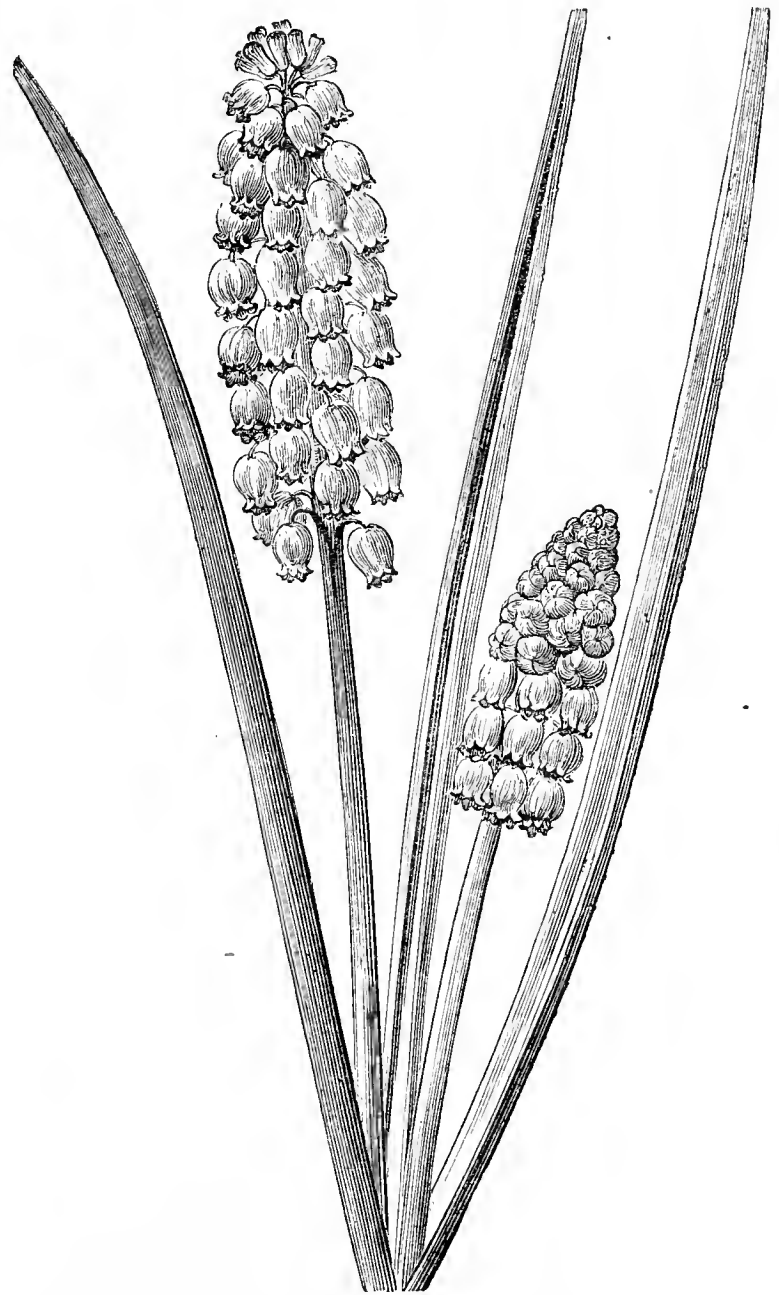


Fig. 79.—*Muscari Szovitsianum*.

conical raceme of bright blue flowers; it is rather dwarfer than *M. Szovitsianum*. *M. armeniacum* has fine dark purplish blue flowers in a large compact raceme; it is one of the darkest coloured forms. *M. neglectum*, also very dark blue, almost black flowers, in a large raceme. *M. conicum*, *M. compactum*, *M. pallens*, and several others are all more or less pretty but rare. One form is grown by Messrs. Osborn under the name of *M. commutatum*, dwarf, with small light blue globular flowers in a neat raceme. It is very pretty, but I do not think it is the *M. commutatum* described by Mr. Baker, as that has darker flowers and is of stronger growth.

*M. moschatum*.—This, though very distinct from the other Grape Hyacinths, and much less attractive in colour, deserves notice for the powerful and to some persons very agreeable musky odour it possesses. The flowers are long, not globose as in the other forms, more suggestive of the *Lachenalias* in form, and the colour



is greenish yellow with a few tints of red. It is an old species, having been described and figured by Parkinson in his "Paradisus" under the name of "*Hyacinthus Botroides major moschatus*, the Great Yellow Muske Grape Flower," which he states is "very sweete in smell, like unto Muske, whereof it took the name Museari." A few potfuls of this in a greenhouse are very acceptable.—L. C.

#### WALLFLOWERS AND SWEET WILLIAMS IN POTS.

**WALLFLOWERS.**—These are always appreciated when they appear in the open, and they are so easily cultivated that the poorest as well as the richest may have them in their gardens. But the object of our writing is to let it be more generally known how well they are adapted to pot culture, and how well they are suited for room decoration during the early months of the year. Sweet-scented flowers are always welcome at any season, and none more so than the Wallflower. We sow the seed in May on a warm border; as soon as the seedlings are large enough they are pricked out on a piece of good ground about 9 inches apart each way. They are lifted and potted in the autumn. If they are then placed in a house or pit where a temperature of about 45° or 50° can be maintained and never allowed to become dry, they will make good plants, and will flower about the beginning of February without any forcing. The double German forms are very fine when well grown, but for sweetness the single varieties are not surpassed.

**SWEET WILLIAMS.**—I find these very useful when grown in pots. Treated in the same way as Wallflowers, they can be had in flower about the same time. When properly treated they require no staking, as the flower stems are as stiff as when grown out of doors. We raise them from seed in the same way as Wallflowers; but when a good variety is obtained it is advisable to propagate it by cuttings, which will be found to root freely on a warm border.—LEADENHAM.

#### CHISWICK IN MAY.

It is long since the Royal Horticultural Society's Gardens were so beautiful as they are now. Every year during the fruit-blossoming period the numerous trees of various forms and sizes which constitute this great collection are more or less attractive, but this year the wealth of blossom is so great and the flowers are so fine that the effect is particularly imposing. The Pear trees especially are densely clothed in silvery drapery, forming pyramids of purity that no ornaments of the pleasure ground can surpass. Last year Pear blossom was comparatively sparse, many trees being nearly destitute of flowers. This year the reverse is the case, there being very few trees that are not crowded with blossom, and some of these are instructive. For instance, on one side of a walk we find a grand pyramid Jargonelle 10 or 12 feet high and 6 feet in diameter at the base, with branches so strong that no wind can move them, wreathed from base to apex with large blush flowers, while a tree of the same variety, and identical in age, form, and size on the opposite side of the walk, is flowerless. The fruitful tree is on the Quince stock, the barren tree on the Pear. The superiority of the former stock is most striking, the tree being equally stout in stem, clean, and healthy with its barren neighbour "over the way." This Pear is considered difficult to train in the form of a handsome pyramid, but the examples referred to are as near perfect as anyone could wish. The flowers, too, of this variety are amongst the finest, being very large. Splendid, too, in this respect is a variety named Belle Henriette: beautiful indeed is this tree—a huge bouquet, and the appropriateness of the name as applied to the flowers cannot be questioned. Henri Capron compels a pause, being about equally fine; and similarly striking is the valuable autumn Pear Belle Julie, the merits of which as a certain bearer combined with excellent quality is not yet sufficiently appreciated. During recent bad years this tree has been remarkable for its heavy crops, and yet it is, if possible, more richly draped with blossom than ever. Near it is Urbaniste, with insignificant blossom, but this is not an index of the fruit it bears, which is fine. Beurré Hardy is one of the grandest pyramids in the garden, perhaps excelling in this respect Beurré d'Amanlis and Maréchal de Cour, which are models of fertility; while Deux Sœurs is one of the latest, and singular as being the only variety having flowers tinted with pink, like Apple blossom. Such trees as those are quite capable of bearing a bushel of fruit each. There is a large plantation of Pears similar to those alluded to, some of the trees being 10 feet high and more that have been planted six years. They are 8 feet apart, or say at the rate of seven hundred trees per acre. In a good fruit year such culture could not fail being

profitable, especially as the ground between has been and will continue to be also utilised by other crops. True, such trees need pruning, but grown as they are with branches about a foot apart and nearly as thick and strong as the shaft of a spade, the outlay in this respect is really trifling, as, in fact, trees thus fertile make but little superfluous wood. It is quite impossible that anyone who has produced such trees as these could say anything against the system of culture, even from an utilitarian point of view; and no amount of theory—nothing short of actual results, can avail in attempting to show that any so-called natural, or rough-and-ready mode of culture, would be more profitable during the period indicated from the time of planting.

The secret of having such fine trees consists in not shortening the leaders closely, but allowing them to remain as far as the wood is ripened. Few and strong side branches are then produced, not numerous and weak growths, which characterise thousands of trees grown on the pyramid system and which have not proved satisfactory. The principle of growing such trees as those under notice may be described as extension of the leader as long as such extension is needed, and thinning and restriction of the side branches, so that every leaf is fully exposed to the light and air. This is true culture, scientifically sound and practically successful, as the trees bear substantial witness.

Adjoining this fine quarter of Pears is another quarter, mostly of Apples. A freer mode of culture has been adopted here, for all plans are fairly tried at Chiswick. "Try all modes fully, fairly, and without prejudice," might be the motto there—at any rate it is practised if not proclaimed—"and judge by results;" or, as the Americans tersely and significantly would put it, there are "no axes to grind." It must be said that these wild trees that have not been pruned lately do not compare favourably with the others; their spreading branches cover much more space, and many portions are destitute of spurs. No cropping can be done amongst the trees, while if all the flower trusses could be counted they would be far less in number than on the trees that have had better attention and occupy less space. And further, the "let alone" trees will soon all be ruined if every alternate specimen is not cut out, the same has been done in a large commercial fruit-growing establishment in the same district. In fact, these are not suitable trees for gardens, though it is right they should be grown at Chiswick for educational purposes; but there are plenty of trees that are most appropriate, handsome, and profitable for garden culture, and those who denounce the culture of them with "a sweep of the pen" might do worse than pay a visit to Chiswick during the ensuing week.

There are sturdy columns 9 feet high and 18 inches in diameter at the base that need no stakes nor other form of support, that take up no more room than a good Savoy, nor half so much as a Gooseberry bush, yet are crowded with blossom as if covered with snow. Are they out of place in a garden? It may be stated with a considerable amount of confidence that nine hundred people out of a thousand who had such trees flanking their garden walks would not think so. Then there are the vertical cordons 5 feet high, rigid as Hollyhock stakes, and crowded with flowers from the ground upwards. These trees are planted about 18 inches apart, which affords free access to light and air to each, yet as in bloom they form an almost close fence, not occupying a width of ground of more than a foot. This is a beautiful screen of flowers now, far surpassing in this respect a row at right angles of the ordinary horizontal-trained espaliers, though not a word is said against the usefulness of the latter mode of training trees for gardens. If a fair proportion of the blossoms on these sturdy and self-supporting verticals sets—and it will not be the form of the trees that prevents its setting—the ground occupied of, say, a foot wide and 100 yards long will be more remunerative than the same space occupied by any other garden crops that may be planted on the same space of ground near the trees. Yet "fruit trees are not fit for gardens" says some bold man or big man; and forthwith there are hundreds of smaller men who, parrot-like, follow suit, and the refrain rolls on and round, those who have never seen such trees as these quite believing there are no fruit trees fit for gardens; yet not one per cent. of them who had these trees in *their* gardens would, it may safely be said, hasten to root them out. "But the time they take root-pruning and knife-pruning!" some lover of Nature may exclaim. Let them not be startled when it is stated as a fact that they have very little of either. Summer-pineching has been the mainspring of the fertility of the trees, and there are larger trees on walls that have never been root-pruned, and which need next to no knife or winter-pruning, and which, although the branches are vertically trained, are like ropes of flowers from the ground to the top of the wall. Such trees show in the most convincing

and conclusive manner the influence of summer-pinchings in promoting fruitfulness. But the fertility of the several forms of trees referred to is not wholly due to any manipulative process, as undoubtedly the stocks on which the trees are grafted have contributed of their influence, and this is great.

The various stocks are submitted to the fullest and fairest possible trial. This is the time of year for observing the results, as the flowers are the real test of fertility. An accidental occurrence may prevent a tree bearing fruit even after its fruit-bearing capacity has been proved by its blossom. There are stocks that have never been worked nor pruned. All are of the same age, but of different sizes and degrees of fruitfulness. The free or Crab stocks are fruitless, the different varieties of Paradise stocks showing their distinct features of habit and fertility. The French Paradise has proved its character by dying; when not grafted it cannot live long, but when an Apple is worked on it the tree lives for at least a number of years, and fruits heavily—clear evidence of the scion influencing the stock. All these stocks are also grafted with the same variety of Apple—Blenheim Pippin—which is not a precocious bearer nor of close bush or pyramidal growth; yet the precise characteristics of the several stocks both as to habit and fertility are clearly portrayed in the trees, affording the most striking evidence of the influence of the stock over the scion.

It is not necessary to detail the condition of all the stocks, as four of them will be sufficient for all practical purposes—the French Paradise, the Doucin, the Broad-leaved Paradise, and the Crab. The first is the dwarfiest and the most precocious of all, and for purposes of comparison its height may be given as 3 feet, every part of the trees being laden with flowers; the second, the Doucin, is a foot or more higher, proportionally stronger, and bearing about the same number of flowers more thinly disposed; the third, the Broad-leaved Paradise, is over 5 feet high, with, in comparison, few flowers, yet sufficient for a good crop of fruit; the fourth, the Crab, is over 6 feet high, strong and not producing one flower—the Apple, as before stated, being in every instance the Blenheim Pippin. There are two trees representing each stock, and each is an exact counterpart of the other.

If space permitted some practical lessons might be deduced from this instructive and fairly conducted and valuable experiment; but it can only be briefly and broadly stated that if an acre of Apple trees were planted on either of the first three stocks according to their special adaptations to the soil, and another acre of trees on the Crab stock were planted, and a series of good fruit years were to follow, the produce of the former—the profits—would buy the land before the other would pay the rent; but estimating their relative values over a period of a quarter of a century the very dwarf stocks would probably be nowhere, although even under this test it is highly probable that the freer growing but not rampant Broad-leaved Paradise would be as profitable as the Crab. But the stock trials do not end with the examples quoted. There are rows of young trees on the Paradise and Doucin stocks, a dozen or more of several varieties of Apples being worked respectively on the two stocks. The difference is most marked and perceptible at a glance, the Doucin being in every instance the stronger; while if the tedious process were gone through of counting the thousands of flowers on these two-year-old trees that have never been pruned, the difference in all probability would be very slight.

The Pear trees on different stocks are similarly instructive. A number of Winter Nelis have been growing for years on all sorts of stocks that could be utilised. Whether the trees have been pruned or not the results are the same. Those on the Pear are either barren or sparse of blossom, those on the Quince crowded; some very fine trees worked on *Crataegus coccinea* combine strength with fertility, but a number on other "fancy" stocks are of no practical utility.

It has been said that all the forms of growing fruit trees are adopted at Chiswick. That, however, is not quite accurate, and Mr. Barron might do worse than give an object lesson showing the manner in which so many trees are rendered fruitless by injudicious management and incorrect pruning. He might plant strong trees on free-growing stocks, prune them severely for a few years until a large number of branches were struggling with each other for light; allow these branches to grow during the summer and cut them off in the winter, not thinning them too much; let the roots alone, so that they might be able to incite and support luxuriant growths another year; these to continue growing all the summer and cut off in winter as usual, and so on from year to year; thus showing, as was once stated in this Journal, a fine example of growing flower stakes instead of producing fruit. This is the way in which too many trees are treated,

and disappointment engendered. A system of fruit culture is then denounced because of the injudicious manner in which it was carried out. With a little labour well and intelligently applied the same trees might have been fruitful—a source of pride and profit to the owner during favourable seasons for fruit. At Chiswick the right plan is shown, and it would be seen, if possible, to greater advantage if the wrong were represented in juxtaposition. Far better is it for those who have not the necessary time nor skill for bestowing the proper attention on the trees to simply thin out these branches and allow them to extend, and some Pears, but not all, will form natural fruit spurs, handsome pyramids, and valuable crops of fruit. Apples similarly managed will not form pyramids, but fruitful bushes or bush trees, more or less spreading according to the habit of the variety; but these trees are not fit for gardens, while hundreds of specimens at Chiswick are admirably adapted for this purpose.

Besides the Pear blossom in the garden that is so profuse and fine, there is an excellent show of Plum and Cherry blossom, and the Apple trees will shortly be as richly laden as the Pears. The blossom being a fortnight later than the average period of expansion, and a month later than in early years, and not yet blackened at the core, affords reasonable ground for hope that fruit will follow; but unfortunately violent hailstorms and severe frosts are always liable to occur during the month of May and bring destruction in their train. Let us hope it will not be so this year, for a golden harvest would be a blessing to all.

There is much more that is noteworthy in the gardens, but all that can be done at present is to advise all who have the means of doing so, that desire to see the beauty of Nature combined with the skill of man, to pay a visit to "Chiswick in May," and the sooner the better.

#### PROVINCIAL FOLK LORE.

SOME time ago you were obliging enough to review in these columns a little book of mine entitled "Provincial Folk Lore." I inserted your remarks in a second edition. These have been lately re-reviewed in the January number of the "Westminster Review" for 1881. As this is a famous year for both Cherry and Plum tree blossom it may be interesting to reproduce what is said, and may possibly draw forth some further elucidations. "The author misses his way in his remarks on the familiar south-country rhyme—

"A Cherry year  
A merry year;  
A Plum year  
A dumb year."

This, we are told on the authority of a writer in the *Journal of Horticulture*, means that 'Cherries are never plentiful except when their blossoms have a genial spring and summer, and that an abundance of Plums carries an increase in the death rate.' Now 'this interesting explanation,' as the author calls it, is like the definition of a crab by the French scientific world, utterly wrong in every particular. The word 'merry' has nothing whatever to do with our adjective so spelt, but is connected with the French *Merise*, and is a common provincialism throughout the south-west of England for the wild Cherry (*Prunus avium*). In Hampshire 'Merry Feasts' are still held. The learned authors of 'English Plant Names' further remark that there are various kinds of 'Merries' known as red, black, and white, in different parts of England. The word 'dumb' has also nothing to do with the adjective so spelt, but is a corruption of Damson (*Prunus communis*). The meaning of the rhyme now becomes apparent. It simply says that a good year for Cherries is also a good year for 'Merries'; and that a good year for Plums (always spelt 'plumb' by the rustic of the west of England, and so making a purer rhyme) is also a good year for Damsons—that, in short, the year which is favourable to cultivated is also favourable to wild fruit."

The wind-up of this critique, I humbly opine, is hardly equal to the first part. It leaves me in the state of mind described after certain law pleadings—

"Mr. Parker  
Made that darker  
Which was dark enough without."

Here my memory fails, but I can supply the ending—

"And the Chancellor said, I doubt."

—ALAN CHEALES.

*YUCCA ALOIFOLIA VARIEGATA*.—I recently noticed a remarkably healthy specimen of this fine decorative plant in the intermediate house at Oakville near this town. Although introduced to this country more than a century since, and grown at the Glasnevin and College Botanic Gardens, Dublin, it is too seldom



found in private collections in Ireland. It is said to be hardy, but the foliage could scarcely be as fine as under glass. That it enjoys considerable moisture is proved from its location here near a miniature fountain and artistic reservoir.—W. J. M., *Clonmel*.

#### ROSES AT SOUTH KENSINGTON.

A FEW notes, especially on the newer varieties that were exhibited at the last meeting of the Society, may not, perhaps, be unacceptable to your readers, at least the numerous rosarians who regard the Journal as almost an official organ on all that concerns the queen of flowers. But before I enter upon my theme I must add my word of approbation to the chorus of praise which greeted Mr. Boscawen on his exhibiting such a magnificent specimen of the fine old Orchid *Cattleya Skinneri*. Mr. Boscawen brought this *Cattleya* three hundred miles, travelling all night, and reaching South Kensington just in time to stage his plant, which so worthily won a silver Flora medal, and many of us thought it deserved a gold one. But after all there is nothing like the Rose, and the splendid collections staged by Messrs. George Paul and

to be a good grower. Charles Darwin also took my fancy, being grand in form and bright as to colour at an early stage; but as the buds open fully the colour becomes dull and cloudy, and the Rose falls off sadly. Ferdinand Chaffelle is no gain in any way, while Paul Jamain and Edouard André are both good. Madame Eliza Taissor is an ugly expanded flower, thin in the centre. Mdlle. Julie Dymonier is a lovely Rose, pale flesh in colour fading off to pure white. It reminds me of that old Rose rarely if ever seen now, Louise Magnan, being globular in form and good in every way. Comtesse de Choiseuil has a very good form, but does not stand the sun and appears to be a bad opener, but in the bud is superb. Gloire de Bourg-la-Reine has a good deep colour, but is very thin. Mr. Paul also showed two seedlings unnamed, one of which pleased me much, being of a deep rose colour, having a grand globular form, somewhat in the way of Madame Clemence Joigneaux as to colour. The other seedling did not take my fancy.

Messrs. Veitch exhibited a beautiful collection of half-standards in pots, which were much admired. I was surprised to find what a beautiful pot Rose Mrs. George Paul is, also Olga Marix, which out of doors is worthless. Madame Lacharme, the Tea Madame Maurin, Catherine Mermet, a bloom of which last-named in my opinion was the finest flower in the Show, and Emily Laxton were all very good, and the collection as a whole highly interesting to rosarians.—WYLD SAVAGE.

#### OXLIPS.

HAVING read in your Journal many letters respecting Oxlip, Cowslip, and Primrose culture, I think it may interest some of your readers to learn the result of an experiment I have tried. In the autumn of 1879 I found some pods of seed on an Oxlip plant which had never before produced seed, and as soon as ripe I gathered them and sowed the seed in a pan. A number of seedlings soon appeared, which I pricked off into a large box as soon as they were large enough. In the spring of 1880 I planted the seedlings, which I found numbered about one hundred, into a bed of ordinary garden soil. A few bloomed the following autumn, producing Primrose flowers both yellow and pink. The plants grew to a large size, and this spring have all bloomed freely with the following result—Fifty-four ordinary Primroses of various shades of yellow and pink, thirty-nine producing bunches of Primrose blooms on a high stem, in the way of Polyanthus—these also contain many shades, some very rich crimson; six red Cowslips, but not one of all the number resembles the parent Oxlip.—ROSEWARNE.

#### EXTENSION-TRAINED PEACH TREES.

I AM pleased to see your correspondent and my old "mate," Mr. Pettigrew, recommending this system. I am not one who is going to maintain that it has never been practised before, but Mr. Pettigrew does not, according to his own admission, "go the whole hog" in the matter. He pinches off the laterals, but leaving them is an important part of the system, and it is the only way to dissipate the over-luxuriance of strong shoots and extend the tree rapidly. I would just remark, too, how singular it is that when anyone brings out a new, or supposed new idea, there should always be so many who have, unbeknown, been practising exactly the same thing for, say, half a century or thereabout. Up till the period when I published my account in all the papers of setting Muscat and other Grapes in a minimum temperature of 50° and lower, it was an accepted idea taught by the most noted authors, that a temperature of from 70° to 75° was the secret of setting Grapes, and in every calendar those figures were given; but no sooner had I written than there were ever so many claimants to the low-temperature system, who had never, some of them said, adopted any other practice! Yet they had permitted writers to go on from time immemorial almost to recommend the very opposite, and had never once opened their mouths. And now, although there is not a work on gardening where the extension system of Peach culture is advocated or described, it is discovered that numerous friends and others have been going on with the same all their lives, but they have only just found courage to say so. It is of course, quite possible that a gardener living at John o'Groat's and another living at the Land's End may be carrying on similar practices, but when one does not know what the other is doing, and finds no mention of his opinions or practices in the numerous gardening periodicals and books, he may be excused for thinking that such practices are not common, and it need not "amuse" a gardener of experience and information to discover as much.

PERMIT me to thank you for your fair and impartial review of

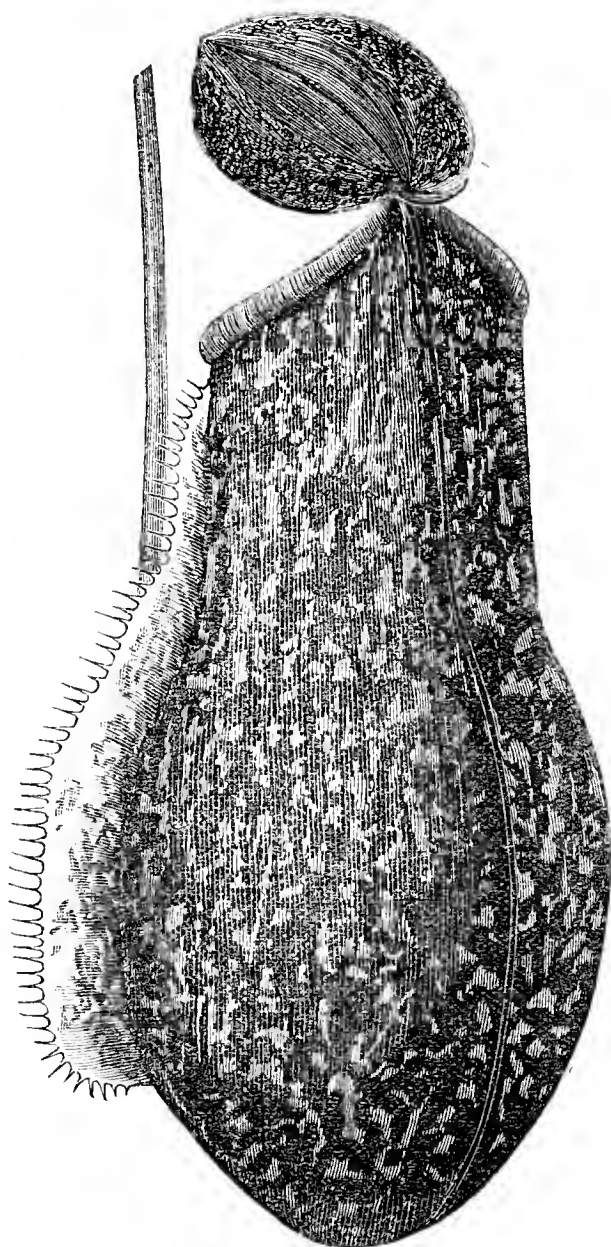


Fig. 80.—*Nepenthes compacta*. (See page 355.)

James Veitch well repaid those who journeyed to Kensington on the chance of seeing their favourite flower. Besides fine examples of older varieties Mr. George Paul showed what is much more interesting—a collection of new or comparatively new Roses. These were small plants and had not many blooms on them, so that my judgment may not be based on very good premises; but I examined the blooms carefully and did my best to form a correct estimate of their merits.

First there was Souvenir de Victor Verdier, a good Rose of a deep rich colour, somewhat in the way of Horace Vernet. Then came Comtesse de Mortemart, which in my opinion is bad in every way; while Jules Chrétien was a splendid bloom, globular in form and grand in colour, as was also Madame Ducher, H.P. It a little resembles Madame Furtado in form and exactly in colour, and appears



my book, and to ask you to kindly allow me to offer a short explanation regarding one or two points raised by the reviewer. He expresses the opinion that if the Peach tree which I planted in 1866 "exists now it would have been well if the author had published a photograph of it." This fact I have all along fully realised myself, and the thing would have been done had it been practicable. I had the photographer here repeatedly with that object, but owing to the tree growing in a lean-to house and under a fixed roof it could not be photographed. First I would have had to remove the roof, or at least all the sashes, as owing to the slanting roof and reflection from the glass the tree could not have been taken; and even after the roof had been removed some scaffolding and much necessary and expensive preparation would have been needful to get the camera placed at right angles to the

tree, so as to show its actual area. Besides, being an early house I dared not uncover the house at that season. These are reasons why a portrait of the tree was not given. The tree, however, "exists," and is perhaps as fine a specimen in its way as could be shown; and, pardon me for saying it, its present condition completely belies the assertion that the "ultimate results of 'Nature's plan' is to increase the nakedness of the branches, and, of course, of fruit towards the base." The tree is a living contradiction of this. Up till two years ago this tree had only a lateral extension of 15 feet, owing to my being compelled to keep a Nectarine in the same division; but these past two years it has had the whole space to itself, and has doubled its size in that time on the extension principle, and it is now 32 feet wide and 18 feet high, and carries a fine crop; and a Nectarine in the next division is nearly

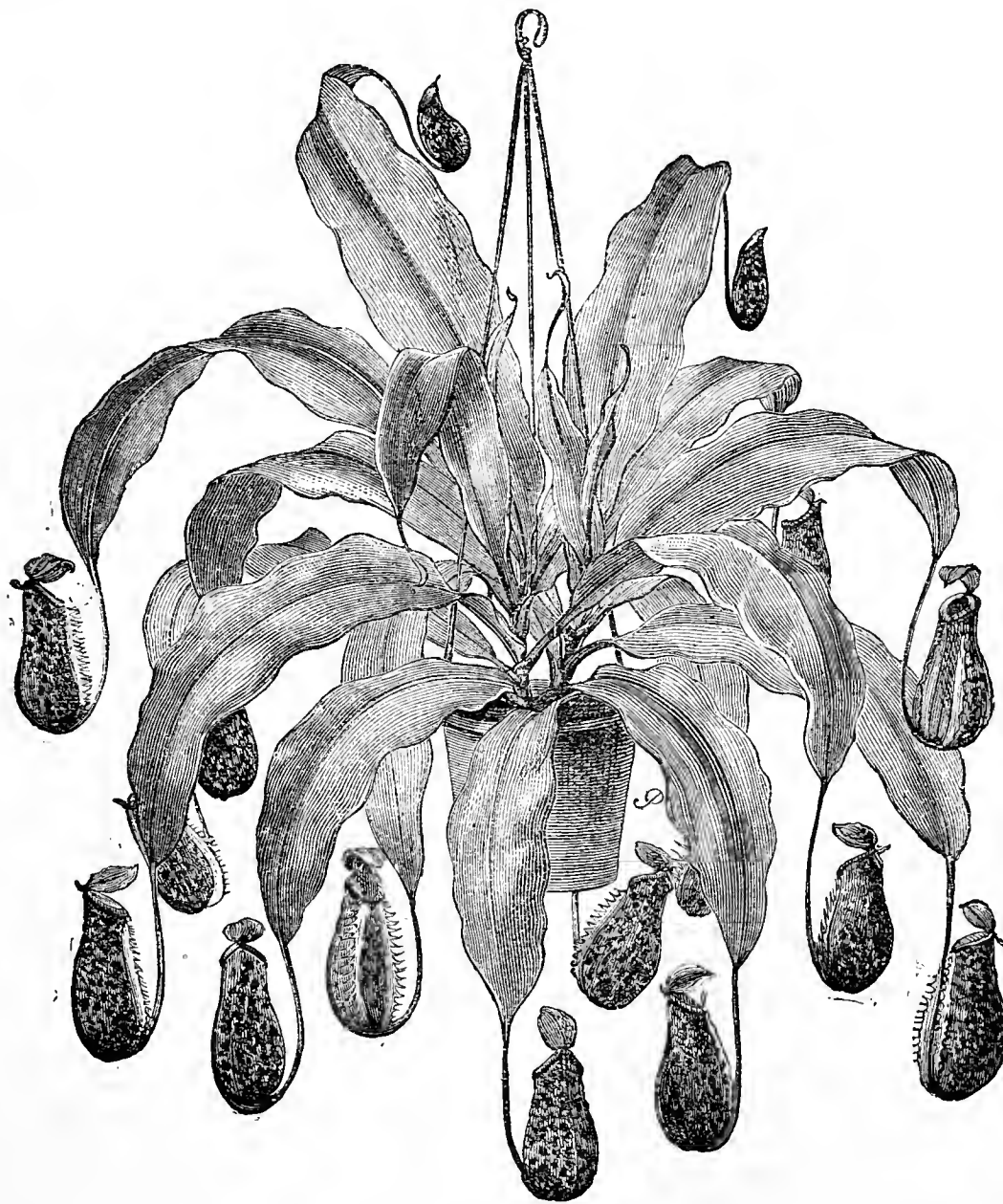


Fig. 81.—*NEPENTHES COMPACTA*.

the same size, and carries an even greater crop. Mr. Fowler of Harewood, who was here the other day, and whom I asked to look at the tree through the glass, in order to see the shoots better, said "he never saw a better-furnished tree." With regard to Vines, perhaps you will allow me also to point out that it is not the quality of the Grapes that the system of extension seeks to improve, but to produce Vines and crops in far less time than is done now—i.e., "quick returns" without impairing the quality of the fruit. I would also point out that I do not condemn "pruning," as your fourth paragraph from the end might convey, and I am aware they prune their trees in America, but not in one case in a thousand probably on the restrictive system. I have near relations engaged in fruit culture in America possessing orchards 1000 acres in extent, and I understand "Nature's plan" is the one followed principally by all cultivators, except that the branches are occasionally thinned out.—J. SIMPSON, Wortley.

P.S.—The trees that are shown grow on an upright trellis,

curved at the top, and the lights, being loose, were taken out for the photographer's convenience.—J. S.

#### NEPENTHES COMPACTA.

THIS is one of the numerous beautiful Pitcher Plants which have been sent out from the Holloway nurseries in recent years; and in the compactness of its habit, and the freedom with which the richly coloured elegant pitchers are produced, it may be favourably compared with any in commerce. It is in the way of the handsome and useful *N. robusta*, and its chief characters are well shown in the accompanying woodcut, kindly lent us by Mr. B. S. Williams, who describes the plant as follows:—

"This very distinct variety has pitchers about 5 inches long and 8 inches in circumference, the primary markings being reddish purple, sometimes shaded with violet, splashed and marbled with creamy white, with margins and mouth of the same colour, the

lid beautifully spotted. It is a compact-growing variety, with a profusion of pitchers, and has been awarded a first-class certificate by the Royal Botanic Society."

#### EUPHORBIA JACQUINIÆFLORA AND POINSETTIA PULCHERRIMA.

THOSE plants that bloom in winter are very much appreciated, as then good flowers are scarce, and the above two are amongst the most beautiful. I have classed them together, as they both require similar treatment. They are generally seen with rather tall stems, and they are then not so well adapted for decorative purposes. The best time I have found to insert the cuttings is the middle of July; if the old plants are started about three weeks previous, they will have abundance of shoots suitable for cuttings, which should be taken off with a piece of the old wood attached. Insert the Poinsettias singly, and the Euphorbias three in a small 60-pot. Place them under a handlight in a close moist heat. When rooted place them in the house, and repot rather firmly into 48-sized pots, employing two parts fibry loam, one of leaf soil, and one of peat, with enough leaf soil and sand to keep the compost open. Place a little charcoal over the drainage, as I find they are rather partial to it. Keep them close till they are established, then harden them off and transfer them to a cold frame close to the glass, remove the lights in the evening, as the plants delight in the night dews. Ventilate the frame freely in the day, and shade from bright sunshine. About the end of September or beginning of October place the plants in a warm, light, airy house, and when the Poinsettias commence showing their bracts give a little liquid manure.—A. YOUNG.



WE have the pleasure to announce that the Right Hon. Lord Aberdare, President of the Royal Horticultural Society, will preside at the next annual dinner of the GARDENERS' ROYAL BENEVOLENT INSTITUTION, which will take place on the 6th of July next.

— WE are informed that at the NATIONAL AURICULA SOCIETY'S NORTHERN SHOW, reported last week, the prizetakers for Fancy Auriculas were Mr. S. Barlow first, and Mr. Bolton second, no third stand being staged. Mr. H. Brownhill was first only (not second and third) with twelve Polyanthus, and Mr. Brockbank was also only first with twelve Primroses, no other stand being exhibited in either class.

— AT the last meeting of the Royal Horticultural Society Mr. R. Veitch of Exeter obtained a first-class certificate for RHODODENDRON EXONIENSE, a beautiful hybrid between R. ciliatum and R. Veitchi, both of which it resembles in some characters. It is noteworthy for its compact habit, bright green leaves, and bell-shaped crisped flowers, which are white faintly tinged with pink, and 3 to 4 inches in diameter.

— MESSRS. RICHARD SMITH & Co. of Worcester exhibited some plants of the pretty and useful DAPHNE FIONIANA at the recent Spring Show in Birmingham, and there was scarcely another group which attracted more attention from the visitors. We are not surprised at this, for a plant that has been sent to us from Worcester is laden with charming rosy flowers deliciously perfumed. The plant is one of the best hardy Daphnes in cultivation, and it is surprising it seems so little known, for either in pots or borders it forms an excellent addition to any garden. The flowers are of a pinkish hue, closely clustered on the branches, and possess a most agreeable and powerful fragrance. The plant was formerly known under the name of D. versaillese, having been the result of a cross between D. Cneorum and D. collina effected by M. Fion, whose name it now bears. It

is usually grafted on one of the common species, such as D. Mezereum or D. pontica, and dwarf compact plants are readily obtained, which flower freely during the early spring months.

— "B." writes—"There is now to be seen in the Camellia house in Croxteth Hall gardens a very fine plant of RHODODENDRON DALHOUSIÆ covered with its large campanulate fragrant flowers measuring 4 inches in length and as much in diameter. The flowers as they first open are of a pale amber colour, changing to pure white. It is surprising these lovely Rhododendrons are not more grown, especially in conservatories where they can be planted out. In the same garden the double Cinerarias now in flower are the finest examples I have seen, the flowers being large and very full. Mr. Barham propagates them by means of offsets, which they produce very sparingly."

— MESSRS. EWING & Co. of Norwich have sent us a few fruit of NORWICH PROLIFIC NUT with the following note:—"The few nuts herewith enclosed are some that were put aside and forgotten in the autumn of 1879, and came to light the other day during some house-cleaning operations. We think, considering that they have been all the time in a dry closet, it is a severe test of their keeping quality." The kernels of the nuts, though much shrivelled, were quite sound and of excellent flavour, quite equal to those of the Lambert Filbert under similar conditions.

— WE are requested to state that seedling Pelargoniums may be submitted to the PELARGONIUM SOCIETY for the honorary award of certificate of merit on June 14th, June 28th, and July 12th. Intending exhibitors must give three clear days' notice on forms provided for the purpose. These may be obtained from the Honorary Secretary, Mr. Shirley Hibberd, 15, Brownwood Park, London, N.

— THERE is now on view at the Alexandra Palace an EXHIBITION OF CLEMATISES in pots from Messrs. G. Jackman & Sons' nursery, Woking. Many excellent varieties are represented in good condition.

— A DAILY contemporary in an article advocating the extended culture in India of the MAHWAH TREE (BASSIA LATIFOLIA), has the following remarks upon the mode in which the crop is collected—"The flowers come to maturity towards the end of February or beginning of March; and the corollas, becoming fleshy with secreted juices, gradually loosen their adhesion to the calyx and fall to the ground. The duty of collecting the crop is chiefly performed by women and children, who generally remain under the trees all day, alternately collecting the fallen blossoms and sleeping, the male members of the family visiting them once or twice a day to take away what has been collected. In cases where the trees are a long distance from a village a temporary encampment is often formed, in which they live till the whole crop is secured. A first-class tree, it is said, will continue to shed its blossoms for fifteen days, at the rate of 100 lbs. a day, which weight is reduced by one-half in the process of drying. A maund (80 lbs.) of dried Mahwah will furnish a fortnight's food to a family of two parents and three children. It keeps good a long time, and is generally eaten with the seeds of the Sal Tree, or with the leaves of jungle plants, a small quantity of rice being sometimes added."

— A CORRESPONDENT, "C. M.," referring to the notes that have appeared in our columns on PELARGONIUMS FOR WINTER FLOWERING, expresses his surprise that "John Gibbons" (scarlet), and Captain Holden (rosy plum), have not been included in the list. He found them very useful last winter, both varieties having flowered freely in an ordinary greenhouse quite out of reach of the sun's rays from October till March. Both are old varieties raised by Mr. Pearson, and our correspondent has proved their usefulness when many other Pelargoniums were not in bloom.

— MESSRS. CASSELL, PETTER, & GALPIN have sent us the following parts of several of their SERIAL WORKS. "Paxton's Flower Garden," part 9, containing coloured plates of *Rhododendron A. B. Mitford* and *Medinilla magnifica*, the latter rather pale in tint, and woodcuts of *Trichosachme lanata*, *Calanthe vestita*, *Steriphoma paradoxa*, and *Aspasia lunata*, with accompanying descriptions. "Familiar Garden Flowers," part 27, gives coloured representations of a Zonal *Pelargonium* and *Cuphea platycentra*; part 50 of "Familiar Wild Flowers" having similar plates of the common Tansy and the Hedge Stachys. The most satisfactory portion of both works being the cultural and historical particulars concerning the plants figured.

— THE annual report for the past year of the JAMAICA PUBLIC GARDENS, by Mr. D. Morris, the new Director, is one of great interest. As the year has been the first under the new organisation the chief work has naturally been of a departmental character, but from the details given it is evident that important advances have been made in developing several industries which must have an important influence for good on the future of the island. From the variation in altitude of the different gardens under Mr. Morris's charge excellent opportunities are afforded for experimenting on various kinds of cultivation, and these he is evidently prepared to take full advantage of. Among the various cultures, concerning which interesting information is contained in the report, are Cinchona, Liberian Coffee, Sugar Canes, Teak and Mahogany, Pine Apples, Jalap, Cacao, Tobacco, Indiarubber, various spices, Oranges, Banana fibre, &c. The best results may be looked for from Mr. Morris's vigorous and intelligent directorship. There is also a very satisfactory report of work for the year ending March 31st, 1880, from Mr. Duthie, Superintendent of the Government Botanical Gardens at Saharanpor and Mussooree. As in Jamaica, experiments, some of them very successful, have been carried on in the rearing of various useful plants, including vegetable and medicinal plants. Much difficulty has been experienced by Mr. Duthie in training Mallies for work in the gardens, and he has some trials before him ere he is able to turn out a staff of properly trained natives.—(*Nature*.)

— "VICK'S MONTHLY MAGAZINE" gives this description of a PERFUMERY FARM IN AMERICA:—"A flower farm has been started at Carpentaria, Santa Barbara county, California, with buildings suitably fitted up with laboratory and stills for the purpose of extracting the essential oils for the sake of the perfumes of the flowers. The fields are described as acres of Tuberoses, English Violets, Jessamines, and Orange blossoms. First on the list of perfume-bearers is the Provence Rose, our dear old 'Cabbage,' or Hundred-leaved, which has lost none of its ancient charms, yet has been supplanted by Roses of deeper and purer tints, or by the Tea Roses which are so inexhaustible in their variety and beauty. Mr. Hall obtains his stock of Roses and Jessamine, as well as the Bitter Orange, in the south of Europe; of the latter he has several thousands of trees. Two weeks ago (January) the Tuberoses were still in perfection—a field of ten thousand!"

— THE "Journal of Applied Science" has the appended remarks upon MELON CULTURE IN AMERICA:—"Missouri boasts of possessing one of the largest and most productive Melon patches in the United States. It is situated on the borders of Scott and Mississippi counties, and equals if it does not exceed in size and adaptation of soil and climate the famous Melon patches of Georgia, Indiana, and the eastern shore of Maryland. It is described as a tract of sandy prairie, four miles wide and ten miles long, with a thin warm soil, just adapted to the cultivation of the Melon, and such Melons as are raised nowhere else in that region. There is much richer and deeper soil all around, but it is not adapted to Melon culture. This land is capable of producing one

thousand Melons to the acre. As Diehlstadt, in Scott County, there were shipped the past season 439 carloads of 1000 to the car; and Bertrand, in Mississippi County, shipped 180 carloads, mostly to Chicago. The Melon county was visited by twenty-five commission merchants from Chicago, who paid as low as 40 dols. and as high as 140 dols. per carload, being an average of 70 dols. per car, the market price varying with the advance of the season and the number of Melons ripening at the same time. Most of these Melons were shipped over the Cairo and Vincennes and Illinois Central Railroads in fruit cars, properly ventilated for the purpose. Melons are becoming such a staple of production that the cultivators are asking for increased railroad facilities to move the product at the proper season, representing that they would plant 700 acres more next year if the railroad will give them a side track and station three miles north of Charleston, to be called Melon Station. It is estimated that 700 acres ought to produce 700 carloads, at the rate of 1000 Melons to the acre, making 700,000 Melons. One man can attend to 25 acres. The variety used is the Georgia Melon, which is very luscious and grows to a great size, some weighing 60 lbs. The hills are planted 14 feet each way apart, and from three to four seeds are put in a hill. They commence shipping Melons about the 20th of July, and continue to the end of August."

#### WOODLAND WALKS.

I READ with great interest the articles on the above subject which appeared in your Journal last year. They were particularly attractive, not only because they were written by your correspondent "WYLD SAVAGE," but also because the subject was unusual and novel. The articles, which dealt mainly with the formation, &c., of walks and drives in woods, must have been beneficial to all the gardeners. Horticulturists may be in danger of becoming too much attached to straight lines and faultless curves, or they may allow the trained gracefulness of our gardens and conservatories to entirely eclipse in their minds the beauty of the modest plants which give a charm to our hedgerows. I think that a truly scientific horticulturist should pay some attention to the decoration of our woodland walks and brook sides.

Many walks and drives in parks and in various parts of our estates are almost destitute of flowers, either from the walks having been newly formed, or from the poverty of the flora of the neighbourhood. Can we not improve the flora of our districts? This most desirable object may be attained by planting roots or by sowing seeds. Many kinds of bulbs are most suitable for this purpose. As simple instances I may mention *Scilla siberica*, Snowdrops, the various kinds of *Narcissus*, all of which if planted in favourable positions will increase and bloom year after year. Scores of other suitable plants will suggest themselves to every practical gardener. For stony rocky neighbourhoods many plants are suitable which can readily be obtained.

My object, however, in writing is to advocate the plan of sowing seed of such annual, biennial, and perennial plants as are likely to reproduce themselves. Everyone should sow plenty of *Myosotis alpestris*, as it will grow almost anywhere, and will produce an abundance of its blue flowers year after year. Seedsmen now offer a mixture of the best varieties of annuals which are selected as suitable for improving the natural flora, the seeds to be sown broadcast in the most favourable positions. It is wise to avoid sowing under the dense shade of trees; if possible the position should be moderately moist, and have the benefit of moderate exposure to the sun. The seed should be sown without any previous preparation of the ground in such places as the sides of streams, hedgerows, and sunny spots in the woods. If sown in showery weather in May it will be sure to succeed. Mixtures of suitable seeds may be obtained at very reasonable prices.—VINDEK.

AUSTRALIAN PLANTS IN INDIA.—Mr. G. Bidie of Madras recently communicated to *Nature* the following notes upon Australian plants in the district of the Nilgiri plateau, in South India, at elevations ranging from 5500 to nearly 8000 feet above sea level:—"Acacias and Eucalypti in particular have found a congenial home in this region, and visitors from Australia who have seen them say that they appear even more vigorous than in their native soil. Hundreds of acres of *Eucalyptus globulus* and of *Acacia melanoxylon* and *A. dealbata* have been planted by



Government as firewood reserves, and the trees have grown up splendidly. The only drawback to the success of the experiment has been that the *Acacia melanoxylon* has been greatly injured by Lorantheous parasites; in fact, this species will apparently in course of time be exterminated by these indigenous pests. Besides *Eucalyptus globulus* the following species of the genus have also been introduced and thrive well:—*E. sideroxylon*, *E. obliqua*, *E. fissilis*, *E. rostrata*, *E. viminalis*, *E. amygdalina*, and *E. perfoliata*. In addition to the two species of *Acacia* already mentioned the following have also been added to the list of healthy-growing exotics on the Nilgiris—viz., *A. pycnantha*, *A. salicina*, *A. longifolia*, *A. decurrens*, *A. cultriformis*, *A. elata*, and others might also be enumerated. As regards other Australian plants on these hills we have *Hakea*, *Banksia*, *Myoporum*, *Kunzea*, *Tristania*, *Pittosporum*, *Beaufortia*, &c. In short, there is a very considerable Australian flora flourishing on the 'Blue Mountains' of Madras, and so extensively have the trees been planted out about the principal stations that they have given quite a new character to the scenery. Some of the *Acacias* have a considerable resemblance in shape and colour to the Scotch Fir, and this likeness has, to some visitors, added a fresh charm to the beauties of the scenery."

#### EPIDENDRUM BICORNUTUM.

AMONGST the numerous species of *Epidendrum* there are many that are not really worth cultivating, though in such an extensive genus we might expect to find many species that would be worth a place in any Orchid collection. This is by no means the case, though a dozen good sorts could easily be found that would please most cultivators, and the one I have chosen for my subject should certainly be included.

*Epidendrum bicornutum* is rarely seen even in large collections, and the reason is, that it is an Orchid which has baffled the skill of most growers to cultivate satisfactorily. It is undoubtedly the finest species of its genus, and in colour and general appearance it will bear comparison with *Phalaenopsis amabilis*; it is a little smaller, but that is more than counterbalanced by the delicious perfume its flowers possess. The best way to grow it is in baskets suspended from the roof, or on pieces of Tree Fern stem. I have grown and flowered it under both systems, and if grown in baskets a compost of very fibry peat, moss, and charcoal should be employed. The plant roots freely in its natural habitat, but is rather shy-rooting under cultivation. The plant is a native of the West Indian Islands, particularly Trinidad, consequently it requires the temperature of the East Indian house. Having a friend living in Trinidad, I wrote him for particulars with regard to where it was found and under what conditions, and, as it may interest some of the readers of the Journal, I will give his reply as I received it. He writes, "With regard to your questions respecting *E. bicornutum*, if I tell you how I collected it no doubt that will suffice. I went out one day last week, hired a boat to carry me to the Five Islands, a group of irregular size, standing at no great height out of the water, in one bend or basin of our harbour, which may be called rocks left after the severance of that part from the mainland by the encroaching influence of the sea. Round these islands one can sail and soon load his boat by pulling the tufts off the ledges of the rocks or any cavity. It is subject to drenchings of water by the action of the waves, is generally fully exposed to the sun, and as it is surrounded by water the plant must be subject to heavy dews owing to the great variation in temperature of the land at night. I soon collected a load, though I am afraid they are too much advanced in growth for travelling."

By these remarks the readers of the Journal may easily perceive that the three most essential requirements of *E. bicornutum* are heat, exposure to sun, moisture, and a moderately low night temperature, and if these be carefully attended to it should make satisfactory progress. Any trouble bestowed on it will, I am convinced, well repay the cultivator, for when once seen the blooms cannot fail to be appreciated. The imported pseudo-bulbs average about 9 inches in length, they are hollow and of a dark brown colour inside. At the base of each there is a small cavity or opening, through which insects, and more particularly ants, find their way and make their nests in them.—W. K.

#### THE BLACK CURRANT.

SINCE the publication of the notes on "Fruit Growing for Market," wherein Mr. Luckhurst refers to an article in vol. xix., page 97, of this Journal, the demand for that number has been so great that the whole of the issue has been sold; and as many applicants have been disappointed in obtaining the number, we

now by request reprint the article, which was communicated by Mr. Luckhurst in 1870.

Of all the kinds of bush fruit grown for the markets, the Black Currant is undoubtedly the most profitable. Its easy cultivation, the vigour with which it grows in almost all soils, and its great fruitfulness are all points in its favour. It flourishes in the cold Wealden clay, in which but few other fruit trees will thrive, and it is considered poor soil indeed in which the Black Currant will not grow; nor is its crop so much affected by being shaded during its growth as that of other fruits would be, for most flourishing plantations of it may be seen growing around and under standard trees.

But while all this may be said in its favour, it must also be granted that it is a gross-feeding plant, increasing in vigour in proportion to the quality of the soil, and it will well repay the fruit-grower for all the manure he can bestow upon it. Some little care is, however, necessary in regard to the way in which manure is applied; no practice can possibly be worse than to dig in manure in the way in which it is sometimes done, the fork going into the ground so deeply as to tear off quantities of the young roots, thus doing more harm than good. This deep culture may answer very well when the plants are young, but as they attain a larger size, and the roots gradually spread farther and farther, manure is best given as a top-dressing or in a liquid state.

In propagating the Black Currant it is a common practice to leave a clear stem of nearly a foot in length; now this is not only unnecessary, but is altogether a mistake, as it is impossible for such trees with their long stems to continue to produce such fine fruit as others, the branches of which spring from the ground erect and strong, and whose vigour and size is constantly increased by the sturdy suckers springing up and taking the place of the older wood.

As an example of what can be done with such bushes, I may instance two fine rows of Black Currants growing in the gardens of the Earl of Romney. These bushes are upwards of twenty years old; they were planted 6 feet apart, but have grown with such vigour that, notwithstanding the freedom with which they have constantly been pruned, they are now 5 feet high, and the side branches of every tree touch those of its neighbour. Nothing can exceed the robust appearance of these splendid bushes. The soil about their roots has not been disturbed for some years past, with the exception of being deeply hoed on the surface a few times in summer, in order to work in the annual top-dressing of hotbed manure. In favourable seasons the fruit crop averages four gallons on each bush; this year it will not be so good, as the crop has suffered from the late spring frosts.

The sight of these large bushes, which from the vigour of their young growth appear likely to flourish for twenty years longer, and the large crops of fine fruit which they produce, are enough to set one thinking; and after making a calculation of the value of their produce at the rate of 4d. per quart, as given by "A LANCASHIRE SUBSCRIBER," in No. 470 of this Journal, so enormous is the total, and so much in excess of what it is customary to speak of, that one hardly likes to put it on paper. However, here are my facts, and I would ask all growers of fruit for profit to give them the notice they deserve. An acre of such trees planted 6 feet apart will contain 1210 plants, and taking the crop at 4 gallons or 16 quarts per bush, at 4d. per quart, we have the astounding sum of £322 13s. 4d. per acre. Now, I do not pretend to say that an acre of Black Currants has ever produced such a crop, but here we have forty-two bushes growing side by side, the yield of which has been up to this average in every favourable season for some time past, and therefore there can be no reason why an acre, or many acres, of such trees should not be capable of producing some such desirable results.

And this leads to the inquiry, Why is it that such fine Black Currant trees are not more frequently to be met with? It may be that the answer is contained in the fact that the hardy and accommodating nature of the Black Currant causes it generally to be planted in poor soil and in an equally bad situation, and so it is very rarely indeed that the requisite conditions are afforded to enable it to attain its fullest development.

Now these conditions are few, simple, and easily understood. Large juicy fruit always commands the best sale. Such fruit is only produced on the young vigorous growth of the preceding year; it must, therefore, be our aim to obtain an abundance of such wood by planting in a deep rich loam, by manuring freely, and by cutting away the old and thinning the young wood, so as to admit air and light. Such being the case, it must be admitted, that while no fruit tree is so useful as the Black Currant for planting in poor soil, yet none thrives better or yields such rich returns when enjoying the advantages of a good soil and generous treatment.

#### SOLANUM VENUSTUM.

THIS beautiful plant deserves to become better known in the horticultural world, as it merits a place in any stove for training to the roof, and then its fine pendulous panicles of soft lavender or mauve-coloured flowers can be seen to the best advantage. When in good condition it somewhat resembles *Petrea volubilis*, especially after the calyxes of the latter have fallen; and it is also suggestive of its ally, *Solanum jasminoides*, which, however, thrives in cooler quarters. Its treatment is simple; a good turfy

loam and a moderate proportion of sand with a little well-decayed manure constitute a compost that suits it admirably. The plant

if well treated grows fast, and will need occasional pruning to keep it in shape; but the best way is to train the branches up the

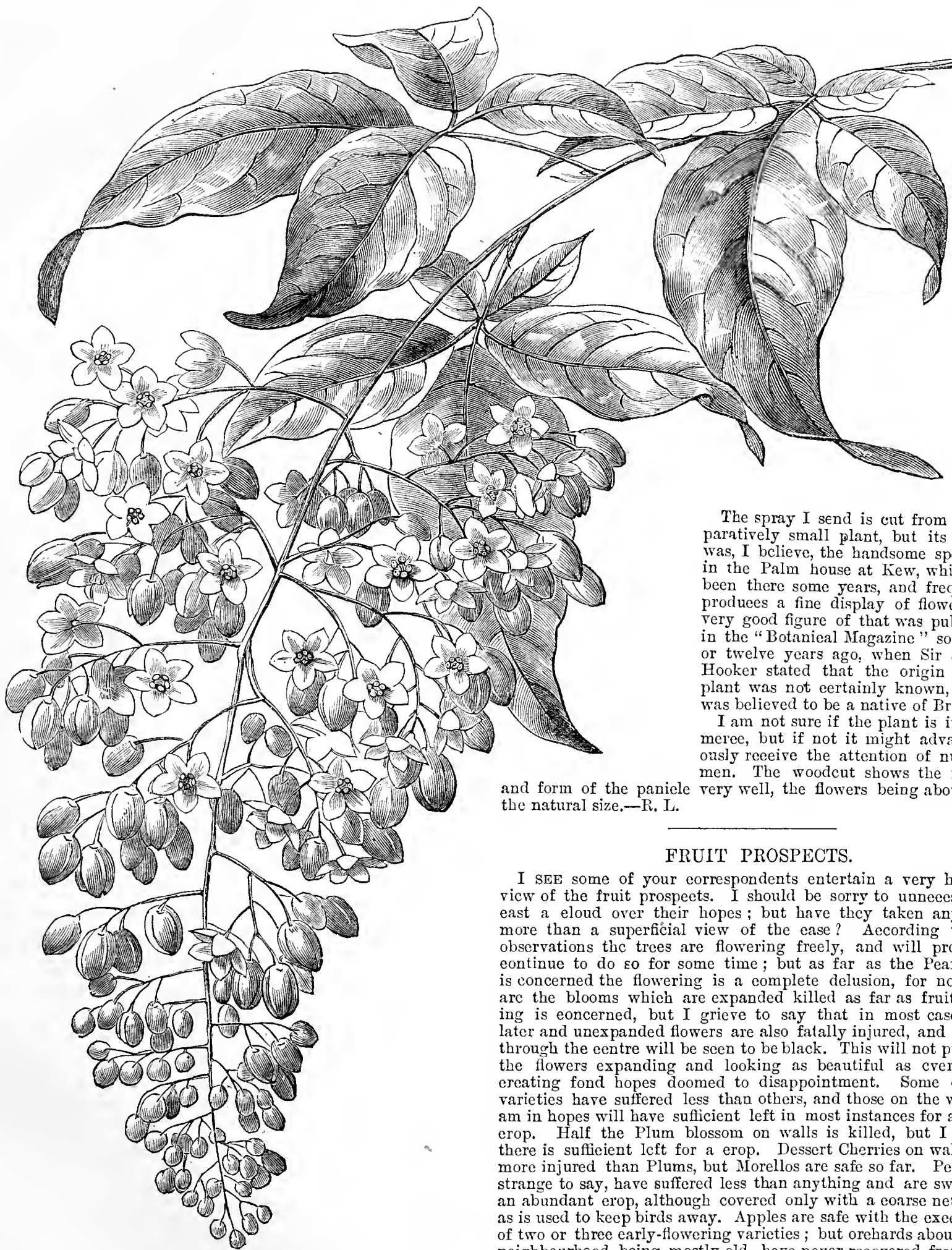


Fig. 82.—*Solanum venustum*.

roof and allow the shorter flowering shoots to hang down in festoons, as it appears much more graceful in that manner than when cut-in too closely.

The spray I send is cut from a comparatively small plant, but its parent was, I believe, the handsome specimen in the Palm house at Kew, which has been there some years, and frequently produces a fine display of flowers. A very good figure of that was published in the "Botanical Magazine" some ten or twelve years ago, when Sir Joseph Hooker stated that the origin of the plant was not certainly known, but it was believed to be a native of Brazil.

I am not sure if the plant is in commerce, but if not it might advantageously receive the attention of nurserymen. The woodcut shows the foliage

and form of the panicle very well, the flowers being about half the natural size.—R. L.

#### FRUIT PROSPECTS.

I SEE some of your correspondents entertain a very hopeful view of the fruit prospects. I should be sorry to unnecessarily cast a cloud over their hopes; but have they taken anything more than a superficial view of the case? According to my observations the trees are flowering freely, and will probably continue to do so for some time; but as far as the Pear crop is concerned the flowering is a complete delusion, for not only are the blooms which are expanded killed as far as fruit-bearing is concerned, but I grieve to say that in most cases the later and unexpanded flowers are also fatally injured, and if cut through the centre will be seen to be black. This will not prevent the flowers expanding and looking as beautiful as ever, thus creating fond hopes doomed to disappointment. Some of the varieties have suffered less than others, and those on the walls I am in hopes will have sufficient left in most instances for a light crop. Half the Plum blossom on walls is killed, but I think there is sufficient left for a crop. Dessert Cherries on walls are more injured than Plums, but Morellos are safe so far. Peaches, strange to say, have suffered less than anything and are swelling an abundant crop, although covered only with a coarse net such as is used to keep birds away. Apples are safe with the exception of two or three early-flowering varieties; but orchards about this neighbourhood, being mostly old, have never recovered from the effects of the cold wet summer of 1879, followed by the severe winter.—WM. TAYLOR.

NATIVE FLOWERS.—I was agreeably surprised the other day by seeing in a plantation on a hill having a west aspect the



yellow Star of Bethlehem (*Gagea lutea*), in abundance and flowering freely. I find this plant very useful in borders or pots at this season, and it ought to be more generally grown. What, too, can be more beautiful at this season than *Anemone nemorosa* and its charming companions the Strawberry-leaved Cinquefoil (*Potentilla Fragariastrum*), the Sweet-scented Violet, and the ever-welcome Primrose, *Primula vulgaris*?—VERNA.

#### MARÉCHAL NIEL ROSE AND BOUGAINVILLEA AT MR. JOHN SCOTT'S.

IN my last letter I endeavoured to give a short description of a garden where there were no flowers to cut or plants suitable for the adornment of rooms. Happily all places are not in this plight, and one of the pleasantest half hours I have had lately was spent among the flowers in the garden belonging to John Scott, Esq., at Warminster. I endeavoured to time my visit so as to see two remarkable plants of Maréchal Niel Rose in bloom. I daresay I have told your readers before that I have no great liking for Maréchal Niel except in certain positions, the best of which is immediately under the roof of a greenhouse, where we can look up and enjoy the wonderful shading visible in the interior of this Rose as well as the beautiful outline of the nearly expanded flowers. It is true that this variety when grown in the ordinary way has its beautifully rich colour to recommend it, and it is also very floriferous, but it requires a great stretch of the imagination before we can say its shape is beautiful, unless we take the Sugar-loaf Cabbage as a model; but covering the roof of a house and exhibiting hundreds of perfect flowers at one time, suspended in the best possible position to show all the beauty without showing what I call the defects, and having an abundance of its glossy green and wavy foliage as a background to check the glare of the sun and enhance the beauty of the colouring, is a picture which, although it is a fortnight since I saw it, is not likely to be soon forgotten. The two plants are on Briars with 4-feet stems; they have been in their present position several years and have always done well, and as the stocks are still swelling freely there is every prospect of their continuing to gratify their owner and his visitors for some time to come.

I understand that the growth made at the time of flowering and immediately after is not productive of bloom; much, therefore, of this is thinned-out, after which the plants start afresh, make long vigorous branches, which retain their foliage through the winter and produce flowering shoots at every axil in spring. The results produced year after year testify to the wisdom of this practice. In the same house were many plants in bloom arranged on a stage along the centre and on broad shelves along the sides and one end. Among them were Camellias, Azaleas, Cyclamens, Pelargoniums, Cinerarias, and Amaryllises, all in vigorous health and carrying abundance of bloom.

In another little house was a plant in flower on the roof even more remarkable, and quite as beautiful as the Rose just mentioned. This was Bougainvillea splendens, and it was a perfect sheet of colour. I suggested that the small yellow flower in the centre of the coloured bracts was a hint that the Bougainvillea and the Maréchal would look well together as cut flowers; but I found Mrs. Scott had already anticipated me, and I had the pleasure of admiring a vase containing the two arranged by that lady, and I must say that I was not disappointed with the effect. I have often been puzzled to know what to mix with Bougainvillea, and in the end have generally put it up separately. The only one I grow, however, is *B. glabra*, and I am not certain that it would go with the Maréchal so well as the one in question does. Mr. Scott's plant is in a large pot, but its roots protrude through the bottom and ramble amongst some rubble forming the bed, on which are grown a quantity of Ferns and some Orchids; so it will be seen its fate cannot be said to be rich.

I think I have already made it plain that, whatever may be the case elsewhere, there is no flower famine at Mr. Scott's; and as this gentleman is the most successful of our local Rose exhibitors, and has occasionally taken high honours at some of the great shows, I need hardly say that he generally has something fit to cut, if it is only a Rose; and I can hardly imagine a garden which would give more pleasure to its owner than the one concerning which these notes are written.—WM. TAYLOR.

[Our correspondent probably refers to Bougainvillea spectabilis in the above notes, and not to *B. splendens*, which is synonymous with *B. glabra*.—ED.]

**ELECTRICITY AND THE VINE.**—The influence of atmospheric electricity on the vegetation of the Vine has been studied near Palermo by M. Macagno (*Jour. de Agr. Prat.*) thus: Sixteen

stocks were rendered more subject to the effects of the electric tension by means of a copper wire inserted vertically with platinum point in the upper end of the fruit branch, while another wire connected the bottom of the branch with the ground. This continued from April to September. An acceleration of vegetation was proved by the wood of these stocks containing less mineral matters and potash than that of the other stocks, while the contrary occurred in the leaves, and in these the potash was mostly in the bitartrate form. A much greater quantity of must was got from the Grapes of those Vines, and it had considerably more glucose and less acid.—(*Nature.*)

#### ODDS AND ENDS.

SUBJECTS not insignificant, and yet not deserving more than a paragraph heading, I have often thought might be usefully treated of under the above heading, and others might be prompted thereby to record their experiences in a similar manner; so, in pursuance of this idea I forward a few notes.

*Schizostylis coccinea*.—A fine plant for decorative purposes and for cutting from in autumn and early winter. It should be grown through the summer in pots plunged in an open yet sheltered but sunny situation in ashes, well supplying it with water and weak liquid manure. Plants in 8 or 9-inch pots will produce from eighteen to two dozen spikes, and brighten up a greenhouse or conservatory wonderfully at the dull season. Small plants may be grown in 6-inch pots for decorative purposes. Plants should now be taken from the ground and potted, or those in pots divided, employing either turfy loam or fibrous peat, as they do well in either.

*Anemone japonica alba*.—The fine large pure white flowers of this are beautiful in late summer, and useful for cutting, and the plants thrive in the borders until frost comes. They may, however, be grown in pots, strong plants being now lifted and potted with some fresh compost—turfy loam with about a fifth of decayed manure. Plunge the pots in ashes, supplying water and liquid manure freely during summer. Strong single crowns now potted in 7 to 9-inch pots will make useful flowering plants by autumn.

*Hellebores*.—"Christmas Roses" are very uncertain in the open borders, and they should be grown in pots, which is a more advisable plan than lifting in autumn. By shifting as required into larger pots very fine specimens may be secured, which have an imposing appearance in conservatories, and the flowers are valued for cutting. They should be hardened off before placing outdoors in spring. Slugs are very fond of the flower buds, and must be guarded against with lime or soot. Rather strong turfy loam is the most suitable compost, and good drainage is essential. *Helleborus niger maximus* is a fine early form of the species. *H. angustifolius* is a very floriferous form of *H. niger*. *H. orientalis* is more stately, and affords foliage as well as flowers at the same time. *H. olympicus* is similar, and very free. These are common, and are often not accorded the attention their usefulness and decorative value claim for them.

*Forced Strawberries*.—Vicomtesse Hericart de Thury has not been satisfactory in the earliest-started batch; the fruit neither set nor swelled freely. Under the same conditions La Grosse Sucrée had some fine fruit, one average fruit outweighing three of the Vicomtesse. Evidently the latter cannot bear so much forcing in the early stages as La Grosse Sucrée, as the second batch was all that could be desired. Black Prince has been discarded for early forcing, as it is subject to mildew, and the fruit is small. Pioneer is also subject to mildew, but its fruit sets well, and is of fine conical form. Keens' Seedling is a capital early variety, but it gives more small fruit than La Grosse Sucrée. For mid-forcing President stands pre-eminent, and for late use Dr. Hogg. Sir Joseph Paxton is always attacked by mildew. Sir Charles Napier when in its best condition is one of the finest, and for an imposing appearance James Veitch is excellent. Sir Harry is readily forced, and equally good is Wonderful and Marguerite, though the latter is not deep enough in colour for some.

*Peach Blossom Setting*.—The idea that artificial impregnation to secure a good set is not necessary, may receive a check from the circumstance that I purposely omitted to resort to any of the approved means of artificial impregnation with Royal George, the very best forcing and surest setting Peach known, and with the result that the fruit set very badly; whilst in the same house Barrington, one of the worst setters under glass, Roman Nectarine, Grosse Mignonne, and Bellegarde Peaches, with Violette Hâtive Nectarine under precisely the same treatment, set well with artificial impregnation. Where there are bees, or the weather is so bright as to admit of ventilation back and front, the disturbance of the air may affect the distribution of the pollen quite



as well as shaking the trees, liberating it with a plume of Pampas Grass, or applying it direct to the stigma with a camel's-hair pencil, but it clearly does not answer to leave matters of this kind to chance.—G. ABBEY.

#### HABROTHAMNUS ELEGANS.

If I were asked to name two plants for climbing in a greenhouse or conservatory the above would be one of them. We have a large bush of it covering a pillar in the conservatory here, and no plant with which I am acquainted surpasses it in production of flowers. This plant has been in bloom since the middle of December, and the supply shows no signs of exhaustion. It has been no ordinary supply either, as every time cut flowers have been wanted, and that has almost been daily, the Habrothamnus was never missed; and it is probably owing to this that it has flowered so profusely, as the oftener it is cut the more lateral growths are produced. Its culture is most simple, the chief requirement being abundance of nourishment at the roots. It succeeds much better planted out in a bed than in a pot, although in the latter way it also grows and flowers freely.

It is easily propagated by cuttings, which should be inserted at once where a little bottom heat can be afforded them. As soon as rooted pot them off singly, and when growth has commenced plant them out in a greenhouse or conservatory in good loam, half-decayed manure, and a little sand. Plants so treated will produce many of their bright crimson flowers throughout next winter, and after that they will very rarely be out of bloom.

Trained to a wall this Habrothamnus soon covers a large space, and it succeeds better in a shady corner than any other of our greenhouse plants. The flowers are highly ornamental in either large or small vases, as small twigs can be had for the latter, and long racemes many feet in length for the former.—J. MUIR.

#### COMING HORTICULTURAL EXHIBITIONS.

WE have received a number of schedules of various horticultural societies; the following brief particulars of which, with the dates at which the exhibitions are to be held, may be of service to some of our readers.

Last year an exhibition of plants, fruits, and vegetables was held at Turnham Green, and proved so satisfactory and successful that it has led to the establishment of a local society under the name of the Chiswick, Turnham Green, and District Horticultural Society. The first Exhibition of the new Society will be held in the Royal Horticultural Society's Garden, Chiswick, on July 14th, when prizes amounting to about £100 will be offered in fifty-two classes for plants, cut flowers, fruit, and vegetables. Subscribers are entitled to several season tickets of admission to the Royal Horticultural Society's Garden, varying in number from one to four in proportion to the amount subscribed. Mr. A. F. Barron is the Hon. General Manager, and Mr. J. T. Musgrave, Sutton Court Road, is the Hon. Sec., from whom schedules and particulars may be obtained.

It is announced that the Kingston and Surbiton Royal Horticultural Society will hold the seventeenth annual Exhibition on Wednesday, July 13th, in the grounds of Bank Grove, Kingston, the residence of C. J. Freake, Esq., when the usual liberal prizes will be offered in numerous classes. Several special prizes are also offered, the chief being those given by the President, H.R.H. Prince Leopold, for a group of plants; by Sir Trevor Lawrence, Bart., for table plants; and by Lady Peek for cut flowers and vegetables. The report for the past year announces a small balance to the credit of the Society. The amount awarded in prizes was £98 13s., against £69 16s. in the previous year, while there was a slight falling-off in the subscriptions considered as due to the Committee not having been able to earlier announce where the exhibition would be held.

As usual the schedule of the Richmond Horticultural Society enumerates classes for all the chief kinds of garden produce. Plants, flowers, fruit, and vegetables are well provided for, the prizes offered being liberal and numerous. In the three divisions devoted to the Society's prizes sixty classes are named, the prizes ranging in value from £8 (the first prize for nine stove and greenhouse plants, the chief class in the Show) to 2s. in the cottagers' division; first, second, and third being given in all. Special prizes are numerous, no less than forty additional classes being thus provided for. Some of the chief donors are the following:—The Duke of Teck, Lady John Chichester, Sir Arthur J. Rugge-Preece, Bart., the Dowager Lady Pigott, Sir Francis Burdett, the Duke of Buccleuch and Queensberry, Sir Trevor Lawrence, Bart., Lady Parker; and Messrs. Sutton & Sons, Osborn & Sons, Daniels Brothers, G. Paul & Sons, Hooper & Co.,

F. R. Kinghorn, and H. Herbst. The summer Show will be held on June the 30th, and the autumn Show in November. We are informed that the Croydon Horticultural Society will hold their Summer Show on Wednesday, the 29th of June, and the Autumn Show on the 14th and 15th of November. The prizes and classes are of the customary satisfactory character. The Finsbury Park Chrysanthemum Society will hold an Exhibition in the Holloway Hall on November the 16th and 17th. Mr. E. Makepeace, the Hon. Secretary of the Hampton Cottage Garden Society, informs us that the annual Exhibition will be held in the grounds of Garriek Villa, Hampton, on July the 12th of the present year. The fifth annual Exhibition of the Rochester and Chatham Horticultural Society will be held in the Paddock, St. Margaret's, Rochester, on Tuesday, July the 5th, when prizes will be offered in 120 classes for plants, cut flowers, fruit, and vegetables. We learn from the schedule that the Harborne and District Potato Exhibition will take place on the 16th and 17th of September in the Masonic Hall, Harborne. Twenty-four classes are enumerated, one for two best dishes of cooked Potatoes being noteworthy. The prizes in six of the classes are offered by nurserymen and seedsmen. We are informed that the International Potato Exhibition will be held at the Crystal Palace, Sydenham, September 20th and 21st. The Lord Mayor is President of the Committee, and the list of Vice-Presidents will probably not differ from that of last year.

In connection with the Essex Agricultural Society's meeting on June 15th and 16th of the present year it has been decided to hold a horticultural Exhibition at Southend-on-Sea, when prizes to the value of £130 will be offered in ninety classes, all the chief garden products being well provided for.

On Wednesday July the 6th the Norwood Horticultural Society will hold their fourth annual Exhibition. In addition to the usual prizes numerous special classes are contributed to by metropolitan firms of nurserymen and seedsmen.

The Burton-upon-Trent Floral and Horticultural Society will hold the annual Exhibition on Wednesday, June 22nd. The schedule enumerates a large number of classes for plants, flowers, fruit, and vegetables, some of the prizes being very liberal, especially for stove and greenhouse plants. In the chief class for twelve specimens £20, £10, and £5 are offered as first, second, and third prizes. The Birmingham Botanical and Horticultural Society will hold an Exhibition in their gardens at Edgbaston on Friday and Saturday, August the 12th and 13th. There is good provision for plants, flowers, and fruit. The Cardiff Rose Society announce July the 6th as the date fixed for their Show. In addition to the ordinary classes a number of special prizes are contributed by gentlemen and nurserymen in the neighbourhood. The Northamptonshire Chrysanthemum Society's tenth Exhibition will be held in the Corn Exchange, Northampton, on November 22nd and 23rd. The schedule shows the usual liberal arrangements for Chrysanthemums, with additional classes for miscellaneous plants, fruits, and vegetables.

We must also mention that the Committee of the Leeds Show have made a most worthy attempt to retrieve their lost fortunes, and it is to be hoped that the weather will smile on them this year and success follow. The Show opens on June 29th and continues for three days. The schedule is an excellent one, and the prizes numerous and liberal.

The Liverpool Horticultural Association will hold the third annual Exhibition in Sefton Park on July the 30th and August the 1st. Liberal prizes are offered in eighty-six classes for plants, cut flowers, fruit, and vegetables. Stove and greenhouse plants are particularly well provided for, the prizes ranging in the three chief classes from £12 to £2.



#### KITCHEN GARDEN.

Sow the main crop of Dwarf Kidney or French Beans, Negro Long-podded, and Canadian Wonder, placing the seeds about 2 inches deep and 6 inches asunder in rows 2 feet 6 inches apart. Sow also Scarlet Runners in rows 6 feet apart where long sticks are used, a less distance where the sticks are shorter, stopping the plants when they reach the top, and where sticks are not obtainable the rows may be 3 feet apart. Plenty of moisture and a warm

position are essential for the success of Runner Beans. If the soil be light draw it about 3 inches high and 18 inches wide on each side of the rows of plants, and mulching with partially decayed manure. Utilise the space between the rows of Peas for Spinach, Lettuces, and Radishes. Lettuce seed for a summer crop is best sown where the plants are to remain, thinning the seedlings to a foot distance apart. For late Peas in light shallow soils trenches should be prepared as for Celery, with the difference that the soil taken out is to be returned and the seeds sown on the level over the enriched trench. Examine Cauliflower plants, applying some rich soil to those wintered under handlights, watering as necessary with liquid manure, and make a sowing of Walcheren for late September use. Sowing Broccoli for late use should not be delayed; such varieties as Lauder's Goshen, Wilcove Improved, and Model, planted on a north border and laid-in in early winter, will afford a succession to those in the open, and possibly continue the supply until Cauliflowers under the handlights come in. Sow Savoys of the dwarf varieties Early Ulm, Tom Thumb, and Dwarf Vienna, which occupy but little room, and come into use early in autumn, being more esteemed than the larger varieties. Encourage growth in the several crops by hoeing frequently between the rows, which will save much after trouble with weeds. Make a successional sowing of Turnips on a north border. If dry weather ensue Turnip fly may be troublesome, but dusting the plants early in the morning with quicklime will check it. As ground becomes cleared of Broccoli and other crops it should be prepared for Celery, the early plants being placed out by the second or third week in the month. The space between the trenches will be available for a single row of Lettuces, which if well attended to will afford fine heads during summer. Hoe between the rows of early Potatoes, and draw a little soil round or over them if there is danger from frost. Spruce branches in readiness to place over them in the evening when frost is expected may save the haulm. Where Potatoes have been planted wide the ground between the rows should be forked, so that when the Potatoes are carted up it may be in a fit condition for planting.

In the forcing department Tomatoes fruiting in pots should have all laterals removed, and if the fruit is near maturity some of the plants may be removed to a cooler house so as to afford a succession. Shift into 5 or 6-inch pots those which are to be planted against walls outside, affording no more heat than is necessary to keep the plants growing. Ridges may now be prepared for Vegetable Marrows, Ridge and Gherkin Cucumber plants, which can be placed out as soon as they have been hardened. French Beans should still be sown in pits or frames for a last crop, affording copious supplies of liquid manure to those advanced. Carrots should have liberal supplies of water.

#### FRUIT HOUSES.

*Vines.*—Early Grapes now ripe will require very little fire heat, the temperature being allowed to fall to 60° at night. Where the fermenting material on outside borders has become cold a portion may be removed, leaving sufficient for a mulching. Increase the ventilation, especially in the early part of the day, and close early. Continue former instructions as to thinning, disbudding, stopping and tying. Examine the inside borders of succession houses at least once weekly, and afford supplies whenever necessary, alternating with liquid manure, both tepid. Late kinds now growing rapidly may be tied out and stopped as soon as they have covered the trellis with good foliage. Vines in pots for next year's fruiting will now be ready for transferring into 14-inch pots. Employ turfy loam with a sprinkling of bones and pot firmly. Newly planted Vines should be closely watched, not allowing the soil to become dry, and in training let all the shoots remain that can be exposed to light, but supernumeraries for next year's fruiting should be closely pinched and confined to one rod.

*Cherry House.*—Directly the stoning is complete the fruit will commence colouring, when, if it be desirable, the ripening may be accelerated by the maintenance of a higher temperature in the daytime. Ventilation must be attended to as before advised. To secure fine fruit more time should be allowed. When colouring commences cease syringing the trees, or the Cherries will crack. Keep the surface

of the borders moist, attending to stopping and tying in the shoots. Supply weak liquid manure liberally to trees in pots.

*Figs.*—With the early crop of these from trees in pots, the main object will be the ripening and colouring of the fruit; therefore allow a little ventilation at the top of the house constantly until the crop is perfected. Cease syringing the trees, and do not allow a superabundance of moisture about the house. Early forced trees in permanent borders will be advanced for ripening, and will require similar treatment, and if the borders have been attended to in watering and mulching they will not usually require further supplies until the crop is ripe. For home use we do not gather the fruit before it is perfectly ripe, but if it has to be sent a distance it should be gathered a few days earlier. Attend to stopping, thinning, and regulating the growths as before advised. Very early crops of Figs from trees in pots will shortly be exhausted, when the syringing may be recommenced twice daily; and if the second crop is abundant remove a part so as not to overtax the trees, especially if they are needed early next season.

*Melons.*—Directly indications of ripening appear a dry condition of the atmosphere must be maintained and less supplies of water given, but not so as to affect the foliage, particularly if a second crop is to be taken from the same plants. Afford support to fruit becoming heavy. Afford copious supplies of water to the roots of those plants with fruit swelling off, also giving weak tepid liquid manure occasionally. Syringe the foliage and walls at about 3.30 P.M., and damp the floors several times a day when the sun is powerful. Attend carefully to ventilating, particularly in the early part of the day. Maintain a temperature of 80° to 85° through the day, and close early in the afternoon, as it will not raise the temperature much over 90°. Pot off seedlings, keep them near the glass to insure sturdy growth, training and regulating the growths of young plants. After the fruit is swelling in pits and frames earth-up the plants, keep the laterals well thinned-out and stopped, and raise the fruit on slates on inverted flower pots. Maintain a good bottom heat by linings, and employ covering at night over the lights for some time longer.

*Cucumbers.*—Little fire heat will be required by day; the valves should be turned off about 8 A.M. and turned on about 5 P.M. In dull weather and cold days fire heat by day will be necessary. The supply of air and moisture will need to be increased according to the increase of light and heat. Houses facing due south will require shading at mid-day, regulating it according to the intensity of the sun. The night temperature should not be allowed to fall much below 70°, and 75° secured by day, and 80° to 85° from sun heat. Syringe the foliage at about 3.30 P.M., and damp the floors, &c., frequently through the day in bright weather. Afford liquid manure about twice a week. The importance of clean growth cannot be over-estimated; and instead of trying to clear the foliage of red spider, remove infested leaves and coat the hot-water pipes thinly with sulphur. Fumigate at once upon the appearance of aphides. In pits and frames, if the plants are healthy, shading will not be required at present, but the foliage must not be allowed to flag. Sprinkle the plants about 3 P.M., closing the lights at the same time, the temperature not being allowed to exceed 90°. Attend to stopping, training, and earthing-up, also sowing as necessary for succession.

#### ORCHARD HOUSE.

The wintry weather in early April has considerably retarded the progress of the fruit trees in this structure. Aphides often appear whilst the trees are in blossom, and in that case fumigation must be resorted to; but if it can be delayed without the serious spread of the insects until the fruit is set it will be safer. After the fruit is set syringe the trees well every morning when the weather is mild and not likely to be dull. Ventilation must be carefully attended to, opening the ventilators about 7 or 8 A.M., closing about 6 P.M.; or whenever frost or a low night temperature is expected close somewhat earlier, as no danger need be apprehended from a rather high temperature during the latter part of the afternoon. Apricots set and abundant should be thinned moderately, and any strong or superfluous shoots be rubbed off or pinched back to preserve the symmetry of the trees. If mildew appears on Peach and Nectarine trees dust them with sulphur. Fig trees are growing, and must be

abundantly supplied with water, for if allowed to become too dry a check will be given, causing the fruit to drop.

#### PLANT HOUSES.

*Orchids.*—For about four months forward most of the plants will be growing. Increase the temperature in the East Indian house to from 70° to 90° by day and 65° to 70° at night; Cattleya house 65° to 75° by day and 60° to 65° by night, and in the Odontoglossum house to 55° at night and 60° to 70° by day. Shading will be required as the season advances; and as air will be required at the same time the shading material must be kept from closing the openings for ventilation by having laths fixed to the roof, so as to allow a space of about 3 inches between the shading material and the glass. *Aerides*, *Phalænopses*, *Saccolabiums*, and *Vandas* must be constantly moist, and their foliage cleaned by frequent spongings. *Cymbidiums* requiring repotting should be placed in rough peat with small lumps of charcoal, giving good drainage, as plentiful supplies of water are required. Examine *Stanhopeas* frequently, and if at all dry soak them in tepid water, and any that are starting into growth should have the moss renewed. Very little if any fire heat will be required for the cool Orchids for the next four months, the difficulty in hot weather being to keep them cool enough. Some *Odontoglossums*, such as *O. citrosimum*, *O. hastilabium*, and *O. naevium*, require a little more heat than others, and should be placed at the warmer end of the house. *Lycastes* require similar treatment, but *Masdevallias* should be given the coolest part. Orchids required for conservatory decoration or exhibition should be gradually prepared for the change, placing them in a house with a north aspect and a temperature of 50°, water being gradually withheld so that the sphagnum is just moist.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

##### TREATMENT OF BEDDING PLANTS.

MANY of the hardier bedding plants may now be permanently planted out. This will give them a good start—those especially which have to be freely divided before hot dry weather is experienced, and will also admit of the glass employed during the winter for their protection being utilised for hardening off other more tender kinds. *Echeveria secunda glauca* is most effective when disposed in the margins of raised beds. They should be placed to face outwards, and the ordinary soil, if made tolerably firm, will keep them in position without clay. If scarce they may be disposed thinly with either *Sedum glaucum* or *Mentha Pulegium gibraltarica* interspersed. An inner line of *Golden Pyrethrum* contrasts well with the *Echeverias*, and the beds can then be filled with either the ordinary bedding plants or carpeting plants. The *Pyrethrum* is particularly suited for marking the lines in carpet beds, and if large enough may be dibbled in at once, choosing a dull day for the operation. They should be put in thickly, say about 2 inches apart, the aim being to secure a fine line rather than large plants. What is technically termed the "groundwork," in other words the spaces between the figures of the design, is usually filled with close-growing plants, such as the *Mentha*, *Sedums*, *Herniaria glabra*, and occasionally *Mesembryanthemum cordifolium variegatum*. All with the exception of the latter may be divided into very small pieces, this in preference to large patches, and be dibbled in so they touch each other. The soil should be very fine and rather light, level, and firm, or otherwise the effect will be marred. To avoid undue trampling during the operation of filling the beds work upon planks, blocking these up clear from the soil. The brighter-coloured tender plants to be filled in early in June.

Autumn-struck bedding *Pelargoniums* that are well established in either pots or boxes may, if frames are unavailable, be placed on ashes in a warm sheltered position, and covered during frosty or cold wet weather with mats or other protecting material, supported by a temporarily erected framework. They should be watered rather sparingly when first turned out. *Pelargoniums* are best potted off singly into 3-inch pots, and should have the preference, as such kinds as *Lobelias*, *Pyrethrums*, *Verbenas*, *Ageratums*, *Heliotropes*, *Petunias*, *Iresines*, and *Alternantheras* not only grow more freely in boxes, but can also be transplanted readily from them. Avoid using deep boxes, especially for the two last named. These and *Coleus Verschaffelti*

may be propagated till the end of May, and very frequently these late-struck plants start into growth more freely than do others which may have been in cold frames for some time previous to being planted. *Mesembryanthemums* should be potted-off singly into small 60's; but as these, *Coleus*, *Iresines*, and *Alternantheras* are the last to be planted, the pots previously filled with the *Pelargoniums* may be utilised for many of these, as the plants will quickly become established if placed in a gentle heat after being potted.

The dwarf bedding *Tropæolums* of the Tom Thumb section must also be potted off singly in 3-inch or smaller pots, and the same size or larger for the variegated *Maize*. The bedding *Amaranthuses* are very tender, but in heat are quick-growing, and therefore if sown now may be eventually potted off singly and be ready for planting early in June. *A. melancholicus ruber* is a good substitute for *Iresine Herbstii*, and *A. Henderii* includes some very pretty varieties suitable for the subtropical garden. Seedling *Cannas* may be potted off, and old roots that have started can easily be separated, potting the divisions; or if the clumps are strong defer dividing till planting time. Similar remarks apply to *Dahlias*. *Ricinus* seeds germinate quickly, and if sown in gentle heat at the present time, and the young plants are potted off singly into 5-inch or 6-inch pots, they are soon fit for planting. Early sowing and early planting are injurious to *Ricinus*. *Eucalyptus globulus* and *Acacia lophantha* should be potted into small 60's, grown on in heat, and shifted into 5-inch or 6-inch pots before becoming root-bound. The ornamental-foliaged *Solanums* may be treated similarly. Stocks, Asters, Marigolds, Zinnias, Godetias, *Helichrysums*, *Dianthus*, *Phloxes*, and other annuals may either be pricked out in boxes or in a bed previously occupied with early Potatoes. To be successful with these prick them out before they become crowded, and plant them out when of good size. Many plants are injured by being raised early and afterwards kept in boxes till perhaps the flowers of some kinds are forming.



#### HOW, WHEN, AND WHERE TO USE COMB FOUNDATION.

(Continued from page 344.)

THE fixing in the frames will next require attention, and if this be done with molten wax a most perfect tool can be easily made, and as follows: Cut a board (at least half an inch thick) slightly less in length and width than the inside measures of your frames, and across the back of it fix two battens cut so long that they project half an inch top and bottom. If this board be laid down the frame may be slipped over it, when the back of the frame will rest on the batten ends. If the sheet of foundation be now placed upon the board it will be found not to stand exactly in the middle of the width of the frame. To regulate this put four small screws into the projecting portions of the battens, and turn them down until the sheet standing on the board is in accurate position with regard to the frame which is now resting on the screw heads.

The foundation, either in sheets half an inch less each way than the frame, inside measure, or in strips for guides only, is brought against the top bar when the board is held in the hand with the top bar of the frame downwards and inclined to the horizon. If now a few drops of molten wax are allowed to fall at the upper end and at the point where the sheet meets the top bar, the wax will run, and, almost immediately setting, our foundation will be securely fixed in accurate position. To prevent cracking a little care is needed. The board is brought to the perpendicular; and now, but not till now, the frame may be removed and hung in a spare hive until required. Wax should not, in my judgment, be used on both sides. One side is sufficient, and no breakdown can ever occur if care be taken and the wax used hot enough. Waxing on both sides leads sometimes to disaster, because the form of the foundation is in part obliterated as the wax runs over it, and hence the bees do not there so quickly build out the cell walls. From this cause the comb is occasionally left thin at top on both sides, and if heavily stored below is apt to break away. It is desirable to damp the board to prevent the wax which may reach it from adhering. A glue-pot may be used for melting the wax, and a spoon is passably convenient for applying it, but those possessing many hives would do well to purchase a little article called a



"Smelter," which can be had of the dealers. It is like a glue-pot in principle, but a small spout is provided from which the wax can be poured with accuracy.

In May last year I explained so fully my method of fixing foundation with wires, which I named "Cheshire's Foundation Fixers," that I would rather refer to the articles then appearing in the Journal than go over the ground again. Suffice it now to say that wires are provided with half an inch turned up at right angles at each end, so that they pass just over the top and bottom bars of the frame as it lies around the board previously described; upon each wire five pins are soldered by their heads at equal distances, and are then cut down in length to a little more than half the width of the frame. It will be seen that if the sheet be placed upon the board and one of the pinned wires be passed over the frame, the turned ends will hold the wire to the frame, while the five pins piercing the foundation will fix the foundation to the wire. If five or six of these be used the whole sheet is held most securely. As thirty distinct immoveable points of support are given sagging or stretching is impossible, while perfect flatness is secured. Nor is hot wax needed, as the bees quickly fix the top edge, and for a reason just explained the chance of the comb being left thin above is removed. The wires had better be taken away as soon as the combs are sufficiently drawn out to make sagging unlikely. Swarms may by this means have full sheets given them throughout the hive, while pieces of foundation may be patched together and converted into good combs, so regular and perfect as to excite the astonishment if not the envy of those in their novitiate. Seeing a thing is often of great service, and so I here repeat my willingness to show these matters in progress to those who may be really sufficiently interested to call to examine them.

Our foundation is now waiting to be introduced; the wind has turned into a warm quarter, and we open a stock to ascertain its condition. We note it has plenty of bees and two combs of fully sealed store at the end; we remove one of these, and upon examining the frames find the queen is being a little troubled to discover cells enough for her eggs; room is now made in the brood nest, and the sheet of foundation is inserted; in twenty-four hours it is built out sufficiently to have given the queen some accommodation, for eggs are seen in the middle of it. The fixers are removed, we intending next day or the day after to repeat the process. We now visit a hive thought to be a little behind; we find it poor, with but three frames of brood. To insert a sheet of foundation in the centre here would perhaps involve chilled brood if the weather took a bad turn, and everybody admits that in Great Britain it is a little uncertain; we therefore shave the comb taken from the hive first examined and put it beside the brood nest. The honey will be removed, and everything set briskly going, a comb thus shaved constitutes a fine stimulator for a poor and weak stock. When combs are built on foundation, properly managed, the midrib is always in the right place, so that any irregularity that the bees may cause by extending the length of the cells when storing, may be got rid of perfectly by thus simply slicing down with the knife. A third stock shows unmistakable signs of requiring more room; it is highly prosperous. We give it foundation in the centre of the nest. Near by a stock stands which lost its queen in some way a little time since. It is about hatching a queen from brood given, but the time is yet young, and the mother-expectant may be lost in mating, when the stock would be ruined. Giving it a comb of eggs from the prosperous colony will keep the bees going, and by-and-by sustain its strength, while the loss to the well-to-do will be quite inconsiderable, as into the space opened we slip a sheet of foundation, which in two or three days will be a comb as fully furnished as the one removed. In giving foundation at this part of the season it is far best to place it, if the stock can bear it, so that it will be worked rapidly, and both sides at once. If this is neglected a curling of the sheet from the side first drawn out may take place, because of the expansion of surface this drawing-out occasions. Should other circumstances permit, it is good to place foundation between the straightest combs the hive possesses, but really now there is little need for any combs to be far from perfect in this direction. That space forbids my continuing this subject further is unimportant, as the points here omitted will occur naturally in the calendar for May in next issue.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

#### OUR INDIAN BEES, ESPECIALLY APIS DORSATA.

(Continued from page 321, and communicated by Alfred Neighbour.)

As the readers of our Journal are aware, Mr. Frank Benton, Professor of the State College of Agriculture of Lansing, Michigan, U.S. of North America, has started from the island of Cyprus on a visit to the islands and continent of the East Indies in quest

of *Apis dorsata*—that large bee with which we are most anxious to become acquainted—and of other valuable species of bees, which in case of success he intends to introduce and acclimatise first in Cyprus and to export thence to America and Europe. No doubt all bee-keepers are anxiously waiting to hear how Mr. Benton progresses, and having received a letter on this subject to-day I hasten to publish the contents for the benefit of the readers of the *Bienenzeitung*. Mr. Benton's letter to me is written in German, and reads as follows:—

"Singapore, 8th February, 1881.

"DEAR SIR.—I sailed from the island of Cyprus on the 4th December last, taking with me some colonies of Cyprian bees. I remained in Palestine for a short time, and took some colonies of Palestine bees with me when I left there. On my arrival in Ceylon I found to my great surprise that they do not keep bees on that island—not even in the primitive way in which on the island of Cyprus people keep the native bees in pots or clay pipes. I at once wrote an article, and sent it to the principal journal published in Ceylon, expressing my surprise that bee-keeping was still unknown in this fertile and suitable island. I mentioned how many colonies of bees there are on the island of Cyprus—31,432 in 1879, which figures I have taken from the books of the collectors of taxes there; but the actual number of hives on the island at that time was doubtless much greater. In former years there were 200,000 stocks of bees in the small, poor, and parched island of Cyprus! I also stated how large a profit the Cypriots derive from bee-keeping, and indicated the best way of commencing bee-keeping in Ceylon, advising a beginning to be made with the native species. A few wealthy and influential gentlemen who showed an interest in the introduction of bee-keeping in Ceylon, and still more in procuring some colonies of *Apis mellifica*, consequently called upon me. I am glad to be able to say that owing to my endeavours bee-keeping has become a fact in Ceylon. I have placed in good hands there a few colonies which had accompanied me from the island of Cyprus.

"There are four species of honey bees in Ceylon, which in the language of the natives are named as follows:—1, Kana Mee meso; 2, Dandual Meso; 3, Mee Meso; 4, Bambera. The Kana Mee meso is doubtless a species of *Trigona*, and is very small; it has no sting, and always builds in hollow trees, collecting honey and pollen, but it is of no value to bee-keepers. I took a nest, together with the bees and queen, of this species from a small hollow tree in the jungle, which I have brought away with me. The second species, Dandual Meso, I did not meet with, but I secured a piece of comb of these bees. The cells are regular hexagonals, made of wax, a square inch containing eighty-one cells; the comb is five-eighths of an inch in thickness. I have been told that these bees generally build their combs in the open air, always placing them perpendicularly, and storing honey in them.\*

"Combs of several colonies of the third species, Mee meso, which is doubtless the *Apis Indica*, were obtained from the rocks and hollow trees in the primeval forests on the island, and these, together with the queens and worker bees, were placed into wooden frame-hives of my own construction. The worker bees are three-eighths of an inch long, of beautiful yellow colour, and are very swift on the wing. The chief characteristics of these bees are their gentleness, prolificness, and great industry. Thirty-six of their worker cells cover a square inch. Their drone cells are exactly like the worker cells of our yellow bee *Apis mellifica*, and might very well be used by our bees for breeding workers. This species is undoubtedly suitable for breeding.†

"On the island of Cyprus honey is obtained from this bee as well as from the Bambera, the fourth species, and the largest bee of the island.

"This large bee, Bambera, is found in the interior of the island, and is but rarely seen near the seacoast. When I learnt this I had not time enough to pay a visit to the interior of the island, being obliged to start for the island of Java. Although I did not obtain a sight of this bee I procured some information concerning it from most reliable sources, and I have no doubt of this bee being the famous *Apis dorsata*.‡

"According to this information this bee sometimes certainly builds its combs in the open air, not, however, horizontally, but always perpendicularly. To correct a mistake which has got abroad about *Apis dorsata*, I may mention that there are many hornets in Ceylon, which of course invariably make their combs horizontally, these hornets, in the language of the inhabitants of Ceylon, being called Debora. The people of Ceylon speak the Cinghalese language, which

\* This comb evidently comes from *Apis florea*, which is the smallest of all Indian bees. Their worker-cells are likewise hexagonal, the drone-cells have much thicker walls and their interior is almost cylindrical. Thirty-three and two-thirds worker-cells of *Apis florea* are equal in length to 18½ worker-cells of our own bee.—THE EDITORS.

† Mr. Benton was doubtless correct in taking Mee meso to be *Apis Indica*. The latter has also been described as *Apis socialis* (Lepelletier), *Apis Delesserti* (Guérin), *Apis Peronii* (Latreille), *Apis Perrottetii* (Guérin), and *Apis nigrocincta* (Smith).—THE EDITORS.

‡ Mr. Benton is quite correct. The Bambera—Bamburos—is *Apis dorsata*, the races and varieties of which have been described as *Apis nigripennis* (Latreille), *Apis bicolor* (Klug), and *Apis zonata* (Guérin and Smith).—THE EDITORS.

is derived from the old Sanscrit, in which language the word Debora signifies a bee. But the name of Debora is at the present day applied to the hornet in Ceylon, and this may probably have given rise to the erroneous statement which has reached Europe from Ceylon about *Apis dorsata* building its combs horizontally. A scientific gentleman in the Civil Service of the English Government of Ceylon assured me that he had measured a comb of the *Bambura* in the primeval forest near Adam's Peak, and found it to be more than 6 feet in length. This comb contained so much honey that the branch of the tree to which it was attached had actually broken from the weight of it. Another highly respectable gentleman assured me that he had seen thirty people laden with honey and wax just as they were about to leave near a hollow tree in which the *Bambura* had settled, all this honey and wax having been taken from that one tree. I saw a comb of this species in the museum on the island of Ceylon; it was  $3\frac{1}{2}$  feet long by 2 feet wide, and  $1\frac{1}{4}$  inch thick. It had only been used for rearing worker bees, but where the honey had been stored it was about 4 inches thick.

"I have tasted the honey collected by *Apis dorsata*, and if it had not been pointed out to me as such I should certainly have taken it for honey from our yellow bee, *Apis mellifica*."

"I quite believe *Apis dorsata* to be suitable for breeding. We must not be prejudiced against these bees because they build their combs in the open air. Our yellow bee does the same thing in tropical countries, and when unable to find a suitable place to settle."

"I hope to be back in Cyprus in the month of April in order to continue breeding Cyprian bees during the present year, and to despatch queens of these bees to Europe."

"Your Sincere Friend,

"(Signed) FRANK BENTON."

The above is the account of my esteemed friend concerning his endeavours to hunt up *Apis dorsata* in its native country, in order to acclimatise these bees in Cyprus and America. As soon as I receive further news I will not fail to make it known through the columns of this paper.

In conclusion I may remark that this article has, in addition to the *Bienenzeitung*, been communicated to editors of other journals with whom I am on friendly terms.

Brux, 8th March, 1881.

(Signed) EDUARD CORI.

\* Our native black bee if unable to find a suitable habitation when swarming sometimes builds in the open air. A case of this kind, though of rare occurrence, happened a few years ago on the Bavarian frontier at a distance of an hour's ride from the town of Eger, where a swarm of bees had made combs in the branches of a young Fir tree. I have been informed of this occurrence by bee-keepers of Eger.—THE WRITER OF THE ABOVE ARTICLE.

#### TRADE CATALOGUES RECEIVED.

Bruant, Poitiers, Vienne, France.—*Catalogue of Plants.*

John Halliday, Bridge of Allan.—*Catalogue of Gladioli, Roses, Pansies, &c.*



\*\* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Hardiness of Roses** (*A Subscriber*).—All the Roses you name, grown as dwarfs and protected with manure in the autumn, will survive all ordinary winters except in unusually cold districts. In mild winters they would succeed as standards.

**Exhibiting Dahlias and Pansies** (*Cottage Gardener*).—Some societies state the sizes of the boxes in which the flowers must be shown. A box 7 inches high at the back, 5 inches in front, and 18 inches wide would be suitable for three rows of Dahlias, the length being determined by the number of blooms to be exhibited, allowing 6 inches for each bloom. The larger the blooms are, provided they are firm, symmetrical, and bright and clear in colour, the better; but large blooms, if coarse, would be passed by the judges. The holes in the boxes for Pansies should be  $2\frac{1}{2}$  inches apart. You will find the properties of flowers in our "Florists' Flowers" Manual, which you can have in return for  $4\frac{1}{2}$ d. in postage stamps.

**Recommending Nurserymen** (*Captain, R.N.*).—As we have many times stated, it is quite impossible that we can recommend any particular nurseryman; it would be most invidious and unfair for us to do so, as it would

be a tacit condemnation of others who deserve no such mark of disapproval. You are much too late in seeking what you require, and you can scarcely expect to be served in a satisfactory manner with what you want until the autumn, when you will have no difficulty whatever in procuring what you require.

**Stopping Peach Trees** (*A. C.*).—As you do not desire to increase the size of the trees all the shoots may be pinched at the third leaf, the three leaves being large, not counting small imperfect leaves that often form at the base of the shoot. The shoots following must be pinched at the first leaf, continuing the practice as long as necessary. If the trees are much crowded with growths a portion of them may be removed entirely, as if the spurs are very numerous the foliage is too much crowded for the production of fruit buds. When the pinching is properly done and the trees are in other respects well managed Peaches bear as well on spurs as on young wood, the fruit buds in both cases being formed during the current year.

**Syringa not Flowering** (*N. S. R.*).—The severe pruning to which you allude is the cause of the shrub not flowering. The growths produced after the pruning would be luxuriant, and if these were again cut down similar results must follow. If you cease pruning, or only prune very slightly and judiciously, obtaining smaller shoots than can be matured by full exposure to the sun, thinning out superfluous growths if needed to prevent overcrowding, your shrub will again flower. When a *Syringa* is well formed and in flowering condition it will continue so, if it is not pruned beyond the removal of any branch or shoot that is out of place and mars the appearance of the specimen. If your shrub had not been pruned at all it would have continued flowering.

**Removing Conifers** (*R. W. B.*).—Very much depends on the nature of the soil in the successful removal of Conifers. In some soils they produce an abundance of fibrous roots, to which the earth adheres with considerable tenacity; in other ground the roots are fewer and less fibrous, and the soil falls from them when moved. If you will adopt a safe plan by digging round the specimens now quite below the roots, and if you can place soil containing much vegetable matter, such as decayed leaves and similar refuse, in the trenches, pressing it firmly, you will encourage the production of fibres, which will be of great value when the specimens are transplanted. The distance of the trenches from the stem must depend entirely on the size of the trees, and especially of their diameter at the base, which you do not name. The whole work must be done with thought and care.

**Growing Flowers for Perfumery** (*J. E., New York*).—Since you have no practical knowledge of this subject, and as we are unable to supply the information you need, the best advice we can give you is to write to Messrs. Piesse & Lubin, perfumers, Bond Street, London, and they will send you particulars of a work which they publish, and which will be of service to you; they may perhaps also be able to give you other instruction on the subject such as you appear to require.

**Raising Seeds of Indiarubber Plants** (*San Juan*).—Prepare some pots or pans by draining them thoroughly with potsherds, on which should be placed a little rough soil or moss, then filling up with finely sifted soil and sand in equal parts. Sow the seeds, and cover them with about half an inch depth of similar soil, plunging the pots in a hotbed or propagating frame, being careful that too much water is not given, and also that the soil is not allowed to become dry. If the seeds have been thoroughly ripened they may germinate in the course of a month or a little more. The implement you mention continues satisfactory and is not likely to get out of order.

**Horticultural Shows in June** (*Mrs. Webster*).—The following Exhibitions will be held in London during the period you name. The Royal Horticultural Society, South Kensington, Great Summer Show, June 3rd; Evening Fête, Rose and Pelargonium Show, June 28th. Royal Botanic Society, Regent's Park, Evening Fête, June 15th; Summer Show, June 22nd. Croydon, June 29th; and Richmond, June 30th. The National Rose Society's Show will be held at the Crystal Palace, July 2nd.

**Peach Flowers Dropping** (*M. D.*).—Peach trees cast their buds from a variety of causes, the most common perhaps being drought at the roots, not at the time when the blossoms ought to be expanded only, but many months previously. Overcrowding of the growths in summer, attacks of red spider, immaturity of the wood, and a close atmosphere, all contribute to the same result. It is impossible for us to say what has been the cause of the evil in your case on the data you have afforded us. A portion of the wood would have aided us in arriving at a decision; but in the meantime we advise you to examine the border 2 feet below the surface. Many borders have a moist appearance when the soil is dry below, and in such a case the flowers must fall.

**Fuchsias Diseased** (*A. A., Burn*).—We are not able to account for the condition of your Fuchsias on the data you have afforded. We perceive there have been insects on them, and we think thrips, which are very injurious, and when numerous cause results similar to those before us; but we do not think they have been in such great numbers as to injure the plants so seriously. We are intimately acquainted with a gardener who grew Fuchsias luxuriantly in one place, and in another no plants gave him so much trouble; the wood ripened prematurely, and the growths had a rusted appearance much like those you have sent. He tried various mixtures of soils, loam forming the base, but with unsatisfactory results. At length on close investigation the soil of the field from which the loam was taken was much impregnated with iron. Loam was then obtained from another source, and the plants then grew satisfactorily. Cut off all the diseased portions, and try some soil from another district.

**Pruning Dwarf Apple Trees** (*J. S., Cairnie*).—As you require the trees very dwarf you will not succeed in having fruitful specimens if they are not worked on a dwarf-growing and precocious stock. You had better prune them at once, the same as you would prune Red Currants—that is, by removing the side growths if any, and shorten the ends to the length desired in accordance with the form and symmetry of the trees. If the branches are numerous thin them out, and in summer pinch the side growths when they have formed four good leaves, allowing the ends to grow, at least until August. It is summer, not winter, pruning that induces fruitfulness and restricts the luxuriant growth of trees. Details of pruning the various kinds of Roses have been frequently given. No one can answer your question without knowing the kind of Roses to which you refer and their condition. You can only check the roots of the Ash trees by constantly cutting them, at least if you require crops of some kind to grow on the site that has been trenched. Your objects, and the conditions of the cases you have submitted, are not sufficiently explained to enable us to reply to your questions satisfactorily.

**Flies on Peach and Nectarine** (*B.*).—The pale insect with large gauzy wings is a lacewinged fly (*Hemerobius perla*), of utility because the grub feeds upon aphides. The dark stout-bodied fly is *Leptis scolopacea*, a species not unfrequent in gardens; its grub feeds upon decayed roots. Neither of these can have anything to do with the injury sustained by the leaves, and on



examination it appears that they have been devoured by the caterpillar of some moth. This has probably kept itself concealed during the day, perhaps under the earth. It is curious how, whether making holes in the leaves or incisions at the edges, the caterpillar has avoided the ribs. There can be no remedy except searching carefully for it, and removing leaves that have been so far bitten as to have their vitality impaired.

**Vines Dying** (*H. E., Crouch End*).—In the first place we have to inform you that your Vines, even when alive, were in a very weak and unsatisfactory state. The growth has been weak and the wood not matured last year. It is a disappointment to you, no doubt, that the rods have died; but you have not sustained any great loss, for canes so badly grown, either through unsuitable soil or unskilled attention, could never have produced satisfactory crops of fruit. So long as the roots and the lower parts of the Vines are healthy, the occurrence which you regret may prove of advantage rather than otherwise, as you may hope to encourage the growth of young canes that will be far better than the old rods; in fact, if such Vines were ours, and alive, we should cut them down with the object of obtaining more healthy and fruitful wood. We attribute the cause of death to the dressing you have applied coupled with the weak condition of the Vines, and it is a matter of chance that all of them were not killed. You have used the soft-soap mixture at least four times stronger than you ought to have done. The maximum strength recommended for dressing Vines in winter is 8 ozs. dissolved in a gallon of water, while you have used 1 lb. of the soap to half a gallon. Of this strength the powerful caustic properties of the potash, which is a large ingredient in the soap, could not fail to injure the bark and arrest the flow of sap. The tobacco water was also too strong by half. Half a gallon of boiling water poured on 2 ozs. of strong tobacco would have produced liquor quite strong enough. In future do not exceed this strength, nor 3 ozs. of soft soap to the same quantity of water. The other ingredients may remain as before, as they will not do harm, nor, we think, much good. We have no difficulty in keeping our Vines clean without painting them with lime, sulphur, soot, clay, &c.; but some gardeners we know attach value to such a dressing, and so long as they produce fine Grapes we do not dissuade them from adopting the practice. Our verdict, then, is that you have accelerated the death of your Vines by a powerful dressing of soft soap—namely, a pound of soap to half a gallon of water.

**Onions for Pickling** (*Inquirer*).—We know of no better mode of culture for securing a plentiful supply of small, firm, round bulbs than that adopted by those market gardeners near London who grow Onions largely for the purpose in question. Their plan is to trench a piece of ground sufficiently deep that a thickness of 3 or 4 inches of the subsoil is placed on the surface. The seed is sown very thickly indeed, and on this account and the land being poor the plants grow weakly, producing thin necks, rush-like foliage, and very small bulbs. We have seen a ton of bulbs produced on a piece of ground, and scarcely one of them larger than a Cob Nut: thus grown, or starved, the bulbs mature early and are harvested during hot weather in summer. The crop is grown in an open and sunny position, and better results are obtained than by sowing under trees—a plan that is adopted with a fair amount of success in some gardens. The present is the time for sowing the seed of the small Silver-skinned variety. The ground prepared as above described is, when manured and turned over again, in splendid condition for almost any crops that require deep and good soil.

**Seedling Gloxinias and Cinerarias** (*Merrick*).—We never received flowers in worse condition than the Gloxinias you have sent. Inserting their stems in bits of Rhubarb stalks was of no use in preserving the freshness of the flowers, as the ends protruded through and were in contact with the dry cotton wool. This material, as we have before stated, extracts the moisture from flowers, and those that are packed in it invariably arrive in a withered state. Soft green Spinach or other leaves are much preferable for packing, damp moss being secured round the stems of the flowers. The flowers of your seedlings are of great size and substance, and the colours, so far as we can judge, are varied and good. We think the varieties possess considerable merit, and the plants have certainly been admirably cultivated. The double Cineraria is very fine, and much resembles Mr. Thomas Lloyd that was certificated last year.

**Insects on Strawberries** (*C. M.*).—These are the maggots of a crane fly, most probably *Tipula oleracea*; the species was very injurious during the spring of 1860. One of the more prominent points in Miss Ormerod's report on the injurious insects of 1880 has reference to the profusion with which *Tipula oleracea* appeared in many districts, attacking not only grasses and cereals, but also damaging crops of Cabbages and Peas in several places, and sometimes attacking Strawberries. A succession of experiments showed that this grub has astonishing powers of defying poisonous applications to the soil. It has been suggested to apply at night (when the maggots are stirring) carbolic acid much diluted, or the ammoniacal liquor from gasworks. A solution of hellebore might also be tried, as Mr. Witherspoon has said, "in soil saturated with hellebore no insect can live, and yet plants are not injured;" but he has not tried its effects on the phylloxera. It would be interesting to know if he has tried it on the maggot of the *Tipula*, and this pest, we believe, is often more difficult to kill than phylloxera. You might try the remedy yourself of the strength named on page 321, and if this does not have the desired effect increase the strength and oblige us with the results.

**Names of Plants** (*W. Muir*).—*Odontoglossum maculatum*. (*C. H.*).—*Omphalodes verna*. (*E. M.*).—The large white flower is *Magnolia conspicua*; the brown flower is *Fritillaria meleagris*; the double mauve flower is *Cardamine pratensis flore-pleno*; and the *Primula* was too small for identification, but resembles *P. intermedia*. All the numbers were displaced from the specimens, but the above will possibly be clear to you. (*W. H. W.*).—1, *Centradenia rosea*; 2, *Goldfussia isophylla*; 3, Unrecognisable without flowers; 4, *Rhynchospermum jasmoides*; 5, *Mikania pulverulenta*; 6, *Hibiscus Cooperi*. (*A Subscriber*).—1, *Berberis dulcis*; 2, *Cotoneaster microphylla*. (*G. O. S.*).—*Forstia viridissima*.

**Bees—Various** (*Buzz*).—1, Removing the stock immediately after the swarm has left will occasion the least loss. If many bees return to the old spot place a little brood in an empty hive on their old stand, and bring them home in the evening and add them to the swarm. 2, Propolis is gathered in autumn principally; if new cotton be used under the quilt it will cost little and save much inconvenience. Bees propolise most where there is bad fitting. If any ray of light can be discerned they make every effort to stop all crannies. 3, We have found *Arnica montana* more generally useful than anything else we have tried as a remedy for stings; it is almost always a specific. Put ten or twelve drops of the tincture into a wineglassful of water, and keep a linen pad soaked with the lotion upon the puncture. Where this has been done promptly we have never known of any discoloration of the eyes or any obstinate swelling. Dr. Pine's lotion is spoken well of by some, others have found it inoperative. *Ledum palustre* of the homoeopathic chemist, or *Urtica urens*, are both occasionally most serviceable. 4, Comb honey for food should be placed in the middle

after being uncapped if the stock is fairly strong. Read an article in this issue. The maker you mention supplies the form recommended. We could hardly publicly suggest a name. 5, If bees are now allowed to store and seal syrup the combs so sealed would not be admissible in the extractor. We are so arranging that the store is continually returned to the brood nest, so that in most of our stocks brood is found in every comb. Our very strongest stocks have so little honey that four or five days' bad weather would reduce them to extremities. We have not fed at all with syrup as yet, but if bad weather came on we should be compelled to do so immediately. 6, The less smoke the better, is our motto; but at the same time very irritable colonies cannot be handled in comfort without a good deal of it. With those that have a bad reputation it is wise to smoke moderately at the mouth one or two minutes before opening, and then more vigorously above as the quilt is being lifted. A veil should be worn in manipulating vicious bees in frame-hives. Is the smoker you use of good form? Bingham or the "cold draught" would give you an easy victory over hornets.

#### COVENT GARDEN MARKET.—MAY 4.

A VERY fair business doing during the week, Grapes of good quality reaching us in better supply, and being quickly cleared at lower prices. Strawberries a ready sale.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges .....	½ 100	4 0 8 0
Chestnuts.....	bushel	12 0 16 0	Peaches .....	dozen	0 0 0 0
Figs.....	dozen	12 0 12 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	4 0 8 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples ...	½ lb.	1 0 2 0
Gooseberries ...	½ sieve	0 0 0 0	Strawberries ...	per lb.	3 0 8 0
Grapes .....	½ lb.	6 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	2 0 5 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ...	½ 100	1 0 1 6	Onions .....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli .....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips .....	dozen	1 0 2 0
Cabbage .....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney .....	bushel	4 0 4 6
Canliflowers .....	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 0
Celery .....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria .....	bundle	1 6 0 0
Endive .....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 8
Fennel .....	bunch	0 3 0 0	Shallots .....	½ lb.	0 3 0 0
Garlic .....	½ lb.	0 6 0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 346.)

IN continuation of our observations upon the advantages and economy in construction of tillage implements and their convertibility for different operations we will take Howard's Champion plough as an illustration, although various other makers offer ploughs of somewhat similar advantages, notably Messrs. Ransome, Head, & Jefferies. We find that many of the best ploughs may be used, not only as ploughs under varying circumstances of soil and situation, but also be made the basis of fittings for numerous kinds of tillage work. We will notice first the plough frame being fitted with digging breasted turn-furrow, and subsoil tines attached for pulverising the soil in the act of turning the furrow; and this in some cases goes far towards saving afterwork in scari-fying, a matter of considerable economy on some land. On the removal of these fittings, however, we have a framework sufficiently powerful and substantial to allow of its being used for subsoiling purposes, with a subsoil frame instead of the ordinary plough body, and yet being as light of draught as can be obtained under the circumstances of severe strain upon the implement. The next metamorphosis which the plough may undergo is by fittings for Potato-raising with double lifting frame, which in use and drawn by a pair of horses will raise 3 or 4 acres of Potatoes in a day. It leaves fewer tubers in the ground, and they are



raised with less bruising and abrasion of the skins than by any other method. For carthing-up Potatoes also it will be found in some cases a better implement than the ordinary ridging plough, as it throws the earth more lightly on to the plants; nevertheless by removing the raising frame and putting on the ordinary double breasts and share it is at once converted into a ridging plough, which may be used for carthing-up or forming stretches for Mangold, Swedes, or Potatoes. These breasts are fitted to the plough in such a manner that they can be readily expanded or contracted, and this independently of each other; also by simply removing the breasts and attaching the hoes these implements can be used as horse hoes by having attached to the frame a cross-bar, and to which in using it as a ridging plough a rod may be joined as a marker in setting out the stretches.

We must not, however, overlook the turnover, the turn rest, or Brabant plough, in the construction of which the shares, coulter, &c., being rigidly attached to the plough renders the implement far more durable and efficient than those in which joints and moving parts are employed to effect the change from a right to a left-handed plough. The moving and turning are accomplished with remarkable ease. Now these, often called one-way ploughs, are especially adapted for work on hill sides where all the furrows are turned down hill, or for sewage, and wherever one-way ploughing is required.

We must now refer to scarifiers. The one so long in use, and to which we have when judge of implements often awarded the prize as the best scarifier, which was first invented by Mr. Coleman, is a powerful implement, and we think the only one which under horse power capable of moving the land in a season of severe drought. It, however, requires so much horse labour that we prefer now to use instead the paring or subsoil plough body, with a cutting share of the description used by Bentall in the scarifier bearing his name. By this means the land, however hard, may be more effectually moved than by any scarifier yet invented, after which it can be effectually tilled with Howard's self-lifting wheel harrows. These implements will be found very serviceable both as drag harrows and as light scarifiers. They possess an advantage over the ordinary drag harrow in being mounted on wheels, which whilst diminishing the draught allows of ready adjustment for harrowing or breaking up the land deep or shallow as may be required. When the implement arrives at the end of the field, upon the driver releasing the lever the harrow by the forward movement of the horses is at once clear of the ground by the draught chain attached to the arm of the lever. This arrangement is also convenient and useful for clearing the harrow of any accumulations of Couch or weeds without stopping the horses. The tines are fitted with moveable steel shares or points, which can readily be replaced when worn.

We will for the present conclude our remarks upon tillage implements by alluding to Howard's new patent steel chain harrow. The tripods are constructed of wrought steel rods instead of cast iron; and by an improvement in their form, the back part being at right angles, the harrow is rendered as efficient for arable land as the common chain harrow, while at the same time its superiority as a grass land harrow is maintained. When used upon arable land the harrow should be drawn the reverse way. This implement, according to our experience, is one of the greatest improvements in connection with the seeding of land with Clover, Grasses, and all small seeds, and also in following the drill after sowing Turnips, Mangold, Carrots, &c.

We will now refer to the improved corn and seed screens, one of the best of which is that made by Messrs. Coleman & Morton, constructed so that not only can the seeds of weeds, &c., be sifted from corn, but also other seeds, such as Clovers, be prepared for market. It has the further advantage of being set so as to divide

Barley from Oats where they have been grown together as drege. This latter object is a most important one, for upon certain soils it is very difficult to grow a plump malting sample of Barley by itself; it is, however, as a rule sure to produce an excellent sample when grown with Oats. It will therefore answer a good purpose to separate the grain, and this screen will do it effectually if the grain is properly prepared by the Barley Hummeller, designed for removing the awns or beard attached to the grain. After this has been properly done there is no difficulty in securing a good sample of first-class Barley, as the Oats and thin Barley grains pass through the screen, leaving only the plump grain behind as a malting sample.

A corn screen is offered by Josiah le Butt, which was formerly known as Roby's patent. This screen is so contrived that it can be attached to the finishing threshing machine, but the winnowing blast can be instantly dispensed with by simply removing the strap, when it becomes an ordinary screen. Nalder's Barley and malt screens are worth attention, for they are adapted for two purposes—preparing Barley for malting, and screening the dust from the malt afterwards. It is very evident that if the maltsters or brewers find it answer the purpose to purchase Barley of a mixed quality, and then screen it, only reserving the stout grain for their own use, that the same thing should be done by the farmer, because he alone has any special use for the thin grain. Messrs. Ransome, Head, & Jefferies offer very effective corn and seed screens. These different screens are good and useful in the hands of men who understand their usage.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—Much good tillage has lately been done by the horses, especially where the steam cultivator had been first employed in the heavy work of early spring. Steam power can scarcely be estimated always by the cost, for it not only does a lot of heavy work in a short time and whilst the weather may be favourable, but it eases the labour for the horses if we look still further, and the seed-time is forwarded. We were yesterday giving orders to the manager on our farm to this effect—The Yellow Globe Mangold seed and also Carrot seed must be drilled not later than the 14th of May, the Swedes not later than the 14th of June, and the hybrid and Red Mammoth Turnips not later than the 14th of July. In arranging matters beforehand in this way, and by anticipating the work to be done, the matter is easy of accomplishment in ordinary seasons. We have also purchased all the artificial manures required, and also the seeds required beforehand, so that no delay may occur at the seedtime. Our provision for manure and seed has been as follows:—Yard dung laid out and spread and ploughed in on the flat; in addition we drill 2 cwt. of prepared Mangold manure with 20 bushels of ashes per acre. For both Swedes and Turnips we shall drill 2 cwt. dissolved bones and 2 cwt. Turnip manure with ashes per acre. Our object is simply that the manure should act immediately upon the young plants, for they often suffer from fly or wireworm when young. The bones are intended to carry the crop to maturity, and to insure a good quality roots. We grow Imperial Purple-top Swedes as being hardy and capable of standing the winter and still maintain their value, especially if clamped or pitted in the field. We are very partial to the Scotch yellow hybrid Turnip of the green round variety, and the Red Mammoth Turnip. The latter grows fast, and yields a heavy crop of the greatest feeding value, keeping sound until Christmas and some time after. On the 25th April we finished sowing both Wheat and Barley with Clover seeds. After harrowing the land was rolled on the surface, and the rains which have since fallen will greatly assist the germination of the seeds.

*Hand Labour.*—Men are employed in spreading dung, in preparing artificial manure, such as guano, for the best guano often contains very hard lumps. It is, however, important that all should be passed through a half-inch sieve. Men and women have been and will be still employed in carting and burning Couch when ashes are required for drilling purposes; otherwise, we prefer to cart the Couch away to heap. This plan not only gives a heap of good materials for dressing pasture land, but enables the work to proceed should the weather prove adverse to burning.

*Live Stock.*—The horned Somerset and Dorset cross-bred lambs have been sold, and the ewes also, except where very early lambs are required, in which case we retain those ewes which are lowest in condition, but especially those which lambed latest. We select for them a good Hampshire down ram, and retain none for lambing except those which will drop their lambs before the 20th of November next. The dairy cows and young cattle for stores or for fattening may now lie out at night without much injury from night frosts, for it is

usually safe on dry pasture or parkland. The sheep have done well lately, because the weather has been dry; and where they have fed on the water meadows, in conjunction with Rye on the arable, supplemented by oilcake, the animals have turned out in fair condition, especially the breeding flocks of ewes and lambs. Upon farms, however without water meadows Italian Rye grass and Mangold are the great and valuable substitutes; in fact, both these may be considered the best food to prevent scarcity. We note, also, that farmers who adopt this plan of spring-feeding their sheep have lately sown Mangold seed after the Rye. They will plough and press the land after Italian Rye grass and sow early Turnips, Rape, or Thousand-headed Kale, feeding off by sheep, and sow the land with Wheat early in the autumn.

#### VARIETIES.

**NIGHTINGALES NEAR LONDON.**—A correspondent sends us the following in reply to the request of "WYLD SAVAGE."—"Nightingales used to sing in the lanes near Holland Park; perhaps now the builders have startled them off. I believe they are still heard in Epping Forest, and I hear that a few birds come nearly to the neighbourhood of Dulwich and Norwood." A correspondent, whose address we have forwarded to "WYLD SAVAGE," also states that the Nightingale may be heard any evening in the neighbourhood of Cheshunt. "J. S." writes to us as follows:—"If 'WYLD SAVAGE' would go to Richmond, near to the Star and Garter Hotel, he would hear plenty of Nightingales either by day or night. I lived at Petersham for nine years, and often heard a most delightful concert on a quiet night between Petersham and the Star and Garter." Another correspondent says:—" 'WYLD SAVAGE' need not go further from town than Richmond Park to hear the Nightingale's songs in perfection; indeed, when staying at a house at Kingston-on-Hill, close to the Park walls, we have wished the untiring little songsters further, for they neither slept themselves nor allowed us to sleep, so loud was their nocturnal concert." "A TAMED SAVAGE" states these birds abound near Chislehurst, and Mr. Pasley writes: "There are numbers of Nightingales in full song any evening after ten o'clock on Sheen Common (ten minutes walk from Mortlake station.)" We are also informed that for many years the Nightingale has been annually heard in the Royal Gardens, Kew, and neighbourhood.

— **A PECULIAR CHICKEN.**—An American correspondent states in a recent issue of "Science Gossip" that he has had "a chicken having four legs, four wings, two necks, and one head, or rather two whole chickens with one head; they are joined breast to breast from the base of the breastbone to the end of the necks, where there is but one head, with the top turned to the side; so had it lived it would have eaten from one side. We often hear of chickens having four wings or four legs, and sometimes two heads, but I never heard of one like the above, which was hatched in Clay County, Mo., in 1876, and is now in alcohol in my collection at Kansas City."

— **BRITISH BALLADS.**—Part 4 of the illustrated work on this subject now being issued by Messrs. Cassell, Petter, & Galpin, contains "Brave Lord Willoughby," "The Bridal of Malahide," "The Brownie of Blednoch," "The Burial of Sir John Moore," "The Cane-bottomed Chair," and "Chevy Chace" among others, with well-executed appropriate engravings.

— **BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.**—At the Council Meeting held at Bristol on April 26th, the draft programme of the forthcoming meeting at Tunbridge Wells was brought up for correction and confirmation. A few alterations were made, chiefly consequent upon the return of the Society to Monday for the opening day of the Show, instead of Wednesday, as at Worcester. Additions were also rendered necessary by the institution of new departments, such as the bee exhibition and the working dairy. The sum of £20 was granted by the Council for the promotion of an exhibition of bees and bee appliances, the arrangements and control being placed in the hands of the Hon. and Rev. J. T. Boscawen. The details of the working dairy were also considered and finally arranged; and the Secretary reported the receipt of donations of £5 from Mr. S. Morley, M.P., and Mr. G. B. Gregory, M.P., respectively, towards defraying the heavy expense incurred by the Society in connection therewith.

— In connection with the National Fisheries Exhibition at

Norwich, the Mayor and Corporation of that City offered a prize of £20 for the best method of treating sewage, chemical and other matter discharged into rivers, so as to render innocuous to fish life. The prize was awarded to the Native Guano Company, Limited, of Aylesbury, by whose A B C process the sewage of that town has been successfully treated for some years. The solid portion of the sewage is converted into native guano, and the effluent water passes off into the river so free of impurity (as shown by analyses) that it is in no way injurious to fish. At the Norwich Exhibition a number of fish were exhibited in a tank filled with the water from Aylesbury sewage, and they appeared perfectly healthy and happy.



#### THE COMING SHOW SEASON.

It is at this season that the committees and managers of shows have to consider their programme for the autumn and winter campaign. Many points have to be carefully weighed, and the best results can only be attained in each case by paying due regard to the special circumstances which govern it. Some of these circumstances are purely local; others, again, are general in their application, but are special in so far as they merely relate to the particular period of the year at which the show is held, or to the success or non-success which has attended the hatching operations of the season. We desire to direct attention to a few of these matters, and shall be glad to receive information from our readers as to any which we may omit. There are in the course of the year from 250 to 300 exhibitions of poultry and Pigeons held in the United Kingdom. Many of these are of real importance, and it is desirable that as to them the sphere of competition should not be in any way limited. Many more are such very minor affairs, both in respect of prize money and classification, that they are at once stamped as local. There is, however, a third class of show, which seems to hang in the balance between the leading and the minor show, and which, we think, loses much from its position of uncertainty. In this class of show the prize money is considerable and the classification tolerably extensive, but neither is liberal enough to place the show in the foremost rank. The result is, that while leading exhibitors of each breed are not attracted in any numbers, the men of several breeds who keep a team for such opportunities as these send in their entries, swoop down upon the prizes, and carry them away from the local fanciers who have expended labour and cash upon the promotion of the show. It is true that these extensive prizewinners pay numerous entry fees, and thus in the first instance bring in funds to the exchequer, and it is also true that the exhibits are often of such a high standard that the eyes of the local fanciers are by seeing them opened to the shortcomings of their own specimens. We admit that these arguments are not without weight, but we must at the same time confess that we think them fallacious. The gain in entrance money is generally merely temporary, and leads to heavy ultimate loss. When it is generally known that Mr. A or Mr. B has become a regular exhibitor in certain classes, and as regularly carries off the prize money, the local exhibitors begin to fight shy of the affair, and prefer rather to send their birds, if good enough, to a leading show for the sake of the notice they may obtain, than to exhibit year after year at home, where anything less than a prize is no great honour, and the chance of winning a prize from the travelling celebrity is slight. As to the other argument to which we have referred, we can only say that we think the majority of fanciers in these days of easy locomotion can always find an opportunity of visiting a really important show, and thus acquiring by a cheaper and more satisfactory method the necessary knowledge as to the merits or demerits of their own specimens. The supposed local Swan is a harmless bird in its own vicinity, and when brought into contact with the world at large is speedily taught that after all it is a mere Goose; but in order to acquire this knowledge it is not necessary or expedient that it should undertake the entertainment of a flock of the genuine breed.

Be it understood that we have not a word to say against the men who thus seek to turn an honest penny by prizewinning. The prizes are there, and are open to general competition. Why, then, should they not win them if they can? It is true that their birds are often merely purchased specimens acquired for the very purpose of prizewinning, and that the prices put upon them are to the local fancier quite prohibitive; but what of that? These

exhibitors are generally too careful of their own interests to allow the birds to get out of condition, and, apart from any cruelty in overshadowing, no other charge can be laid at their doors. The remedy, if remedy be necessary, lies in the hands of the committees of such shows. Let them well consider in the first place whether the position and importance of their locality and the amount of prize money at their disposal is such that a general open competition can be expected. If they decide that the show cannot be expected to take a really important position, we would counsel them then to so frame their prize list that the mere pot-hunters will be excluded. This can be done in several ways. The first and perhaps the most satisfactory method is to limit the competition to a certain area. The next best method is to make the prizes numerous but small in amount. This can be done by increasing the number of the classes, or merely increasing the number of the prizes in each class. In no case should the first prize exceed £1; and if there be £3 to award to a class, five prizes of £1, 15s., 12s. 6d., 7s. 6d., and 5s. respectively would, we think, secure a far better local entry than the usual three of £1 10s., £1, and 10s., and would at the same time offer less temptation to the commercial prizewinner, to whom a good margin over entry and cost of carriage is a necessity.

Another consideration should also be kept prominently in view—namely, whether more real good might not be done by an amalgamation with some neighbouring show or shows, and the formation in this way of one really important show in the place of several mere minor affairs which are mutually destructive to each other. We know that local jealousies are often very bitter, and that such jealousy is by no means absent from the fancier's breast; still in many cases by mutual concessions or by an arrangement that the united show shall be held in each locality in turn, the difficulties in the way may be removed, and several weakly bantlings may be succeeded by one more robust and enduring creation.

The question of classification should in all, except the most important shows, be greatly influenced by the local popularity of each breed. The experience of former seasons where available, the entries in other neighbouring shows, and the individual knowledge of the committee must be looked to for guidance here. A rule is used by some shows that if there be not a certain number of entries in a class, that class shall be cancelled and the entries returned. We hardly think this rule deserves general adoption. A better plan seems to us to be the more usual one of withholding certain of the prizes if there be less than a named number of entries; but even this is open to objection, and should only be used as a tentative and not as a permanent measure. The chicken classes, especially at the early shows, are much affected by the hatching results of the season, and as many accounts which have reached us so far are of an unfavourable character, we would urge upon the committees the necessity of prudence and full inquiry before offering too liberal schedules. We know that the breeders who have triumphed over the difficulties of a severe season think it hard that they should be deprived of any part of their reward, but for the show committee other considerations are necessarily paramount.

One word in conclusion as to speculative shows. These are generally got up by one or two individuals, who hope for a profit, and have no intention of bearing any share of a loss should such arise. Respectable persons frequently allow their names to be made use of by such speculators, and then think themselves hardly used when called upon to make up a deficit. Every means is adopted to avoid payment, and in some cases prizewinners are asked to forego a portion of their winnings. This is most unfair, and we cannot too strongly condemn the dishonesty of the speculative promoters and the carelessness and laxity of those who, by allowing their names to be made use of in such ways, enable this species of fraud to be perpetrated. No show ought to be held unless there be means available to meet a possible loss. Of course, exceptional cases will sometimes occur in aid of which subscriptions may be reasonably solicited, but these should be rare indeed—far more rare than they actually are.

#### STANDARDS OF EXCELLENCE.

IN your issue of April 14th appeared a letter signed "BUFF," raising the question, "Are tricolored Buff (Cochin) cocks to be admitted to the prize list?" The writer, while appealing to those of your readers who are fanciers of the breed to give their ideas on the subject, says, "My experience has been that such birds do not breed evenly coloured pullets, and I think that the uniformity of colour, which is admittedly indispensable in the one sex, should be equally insisted upon in regard to the other." In this short letter I find a great deal suggestive of various in-

teresting points to every fancier and judge of poultry. Firstly, of course, it would be well to know the opinions of some of the great Cochin fanciers as to the colours which correspond in the two sexes of Buff Cochins, and whether tricolored cocks do really produce hens of uneven colour; but beyond this a wide field of interest is opened in connection with "standards of excellence" for poultry, which, it seems to me, in the case of many other breeds as well as this, if they are to be really useful must contain some statement as to the particular points which in one sex go with particular points in the other. If I may I will attempt to expand my meaning a little upon both these headings.

1, The Buff Cochin question. I regret much that up to the present time nothing has appeared in your pages from the pens of those really experienced in the variety in response to "BUFF's" appeal. An admirer and at times a breeder of Buff Cochins I have long been, since days when as a child I was presented with a pair from one of the earlier imported stocks (which, by-the-by, I always believe to have been very good Cochins in form though wanting the size of the now exhibited birds) up to the present time; but to that real and intimate acquaintance with the breed which at once detects the special excellencies or defects which a bird is likely to transmit to its progeny I can lay no claim, and would therefore gladly learn of those who have such knowledge and are sufficiently public-spirited to publish it. As a judge I have not infrequently had some difficulty in placing Buff cocks of the colour or rather colours described to my own satisfaction. It has always seemed to me that a soft uniformity of colouring is one of the chief characteristics of this breed, and consequently that sharp contrasts of shade are out of place in it. At the same time I have often seen the said tricolored cocks so pre-eminently magnificent in form and size that it has been impossible to exclude them from the prize list. Such difficulties must often occur to judges of poultry. Of course the best state of things would be that a judge should only adjudicate upon those classes which he has himself bred carefully; this, however, is obviously impossible, and it therefore becomes the duty of all who agree to officiate in such a capacity to do their utmost to obtain the best information on all such points as that raised by "BUFF"—viz., whether such cocks do produce hens of an objectionable colour. As one who may perhaps be called upon again to award the prizes in classes of Buff Cochins, I should be glad to gain information from those thoroughly competent to give it.

2, This brings us to the larger question of standards of excellence. At the last general meeting of the Poultry Club a resolution was passed to the effect that it is desirable for a new standard to be drawn up. How far that resolution can be practically carried out has, I believe, been lately discussed by the Committee of the Club. Various untoward events have prevented my attending its meetings, and so I write in ignorance of any decision that may have been arrived at. Much may be said for and against the standards of excellence; what, however, I endeavoured in November to impress upon the general meeting I venture now to repeat—viz., that if a standard is drawn up it must be done with so much thoroughness and care, and in the case of each variety by so thoroughly representative a committee of practical breeders, that it may be generally accepted not only by those fanciers who breed but by those who judge poultry. Judges are and ever must be independent of such standards, and so if they are arbitrary or narrow can well afford to disregard them; at the same time I cannot but think that if one were drawn up in a comprehensive and reasonable way it might be a great aid to breeders and judges alike. What suggests itself to me both from the letter of "BUFF" and from my own experience is, that any standard would be imperfect which did not point out the corresponding points in the two sexes of each breed. Considerable latitude might be allowed for fancy, and in some cases great variety of plumage, but there should be some indication of the points which differences in the one sex necessitate in the other. Some of the standards we now have are very good as far as they go—i.e., of the breeds comprised in them they give a good account of what is generally considered a perfect exhibition cock and a perfect exhibition hen; but there is unfortunately this drawback to them, that practically in some cases the perfect cock and perfect hen belong to two sub-varieties, which mated together will not breed both sexes in perfection, and sometimes neither of them. There is no hint in any standard that I know, of the (to experts) well-known fact that in the case of several breeds separate pens are mated for the production of cocks and hens. To be of use to breeders a standard should at least contain some statement of this fact, and to be of use to judges it should explain the connection between the required points in each sex which have brought about this state of things. Arbitrary and absurd



requirements might then no longer be insisted upon, and much good would have been done to useful poultry breeding. Such discussions as that invited by "BUFF" help to clear the way towards a really good "standard," and I earnestly hope that his appeal may not be left unanswered.—O. E. CRESSWELL.

### THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at Charing Cross Hotel on the 27th of April. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Hon. and Rev. A. Baillie-Hamilton, the Rev. E. H. Morgan, and Messrs. T. W. Anns, R. A. Boissier, A. Comyns, J. C. Fraser, S. Lucas, and T. P. Lyon.

**NEW MEMBERS.**—The following new members were elected:—William Proctor Collier, Seamount, Malahide, Co. Dublin; Robert Watson Cowen, Dalston, Carlisle; Capt. Heaton, Worsley; George Vigers, Hersham, Walton-on-Thames. The following new Associate Members were elected:—C. R. Haddesley, Caistor; W. S. Marsh, Winkland Oaks, Deal; G. V. S. Shaw, Edgeworth Rectory, Cirencester; Harold A. Silvester, Hurn Lodge, Beverley; Samuel Taylor, Moorgreen, Notts; Mrs. R. J. Wade, How End, Windermere.

**CIRCULAR TO FANCIERS.**—The Secretary reported that 7537 circulars addressed to the persons whose names appeared in the poultry section of the "Fanciers' Directory" had been issued, and that a copy of the rules of the Club and a list of the officers and members thereof had been sent with each circular.

**CIRCULAR TO SECRETARIES OF SHOWS.**—The Secretary reported that over two hundred circulars addressed to secretaries of shows, in conformity with the resolution passed at the general meeting, had been issued, but that owing to the difficulty of obtaining the necessary addresses a good many shows had been omitted.

**SUBSCRIPTIONS IN ARREAR.**—The Secretary reported that notwithstanding the issue of two notices requesting payment of subscriptions still due for 1880, several members and associates had neither sent in their subscriptions nor given notice of retirement. It was resolved that in the case of all persons whose subscriptions for 1880 shall remain unpaid at the date of the next meeting of the committee without any explanation having been given, their names shall be then announced as struck off the list of members.

**STANDARD OF EXCELLENCE.**—The Secretary reported that the Sub-Committee appointed at the last meeting had met three times, and had prepared the following report:—

Your Sub-committee have considered the best means of obtaining the necessary data for the preparation of a standard of excellence, and have come to the conclusion that the following course will be a suitable one to adopt.

1. To send out to a number of leading breeders and exhibitors of each variety a blank form of standard, with a circular requesting them to fill up the same.
2. That a draft standard of each variety be formulated upon the basis of the replies received.
3. That copies of such draft standard be sent to the leading poultry judges, with a request that they will comment upon the same.
4. That copies of such draft standard be published in the leading poultry papers.
5. That the standard be finally settled by a committee to be appointed at the annual meeting.

Your Committee have prepared blank forms of standards of each breed, and also a form of circular to be addressed to those fanciers whom it is proposed to consult, also a list of names of those they consider it most desirable to consult as to each breed.

Where any breed is represented by a club your Committee suggest that the standard of such club shall be accepted in the first instance.

The report was after some discussion approved and adopted, and it was resolved that the Sub-committee should be re-appointed for the purpose of issuing the circulars and preparing a report upon the replies received thereto.

**VOTES IN COMMITTEE.**—It was proposed by Mr. Lyon, "That when in any case the decision of the Committee is not unanimous the Secretary be directed in his report to the papers to give the names of those members voting each way."

This proposal was not, however, seconded, and thus fell through.

**OWNERS BIDDING AT SHOWS.**—Notice was given that at the next meeting of the Committee a resolution will be proposed by Mr. Fraser, and seconded by the Rev. E. H. Morgan, to the following effect:—"That the resolution passed at the meeting of the Committee held on the 28th March last, condemning the practice of owners being permitted by poultry show committees to bid for and buy in their own exhibits, be amended by inserting the words 'of birds entered in selling classes' after the word 'owners.'"

**NEXT COMMITTEE MEETING.**—The date of the next meeting of the Committee was fixed for Friday, June 3rd, instead of Monday, May 30th, the date previously announced.—ALEX. COMYNS, *Hon. Sec. Poultry Club, 47, Chancery Lane, May 2nd, 1881.*

The following are copies of the circulars recently issued by the Secretary of the Poultry Club.

#### No. 1.

In accordance with a Resolution passed at the Annual General Meeting of the Poultry Club held on the 16th November last, I beg to enclose a copy of the

rules of the Club, and to direct your attention to the objects for which it was formed. These objects are as follows:—

- (1.) The promotion of the breeding and exhibition of poultry.
- (2.) The suppression of fraud and dishonourable conduct therein; and
- (3.) The advancement and protection of the interests of poultry breeders and exhibitors.

#### No. 2.

A Resolution was passed at the Annual General Meeting of the Poultry Club, held on the 16th November, that—

"A circular be sent to the secretaries of the various poultry shows in the United Kingdom, requesting them to communicate with the Secretary of the Club as early as possible as to the dates of their shows in the season 1881-82, with a view to ascertain if, and how far, any of such shows are likely to clash; and, if possible, to obviate such clashing."

You will oblige me if you will kindly let me know as early as possible the date on which it is intended to hold the — show during the ensuing season.

The first was addressed to all persons whose names appeared in the poultry section of the "Fanciers' Directory" for 1880; the second to the secretaries of poultry shows. We see by the report of the recent Committee Meeting of the Club that, owing to a difficulty as to obtaining addresses, some secretaries of shows have not had copies sent them. It may be well for these gentlemen to furnish the desired information to the Secretary of the Club.

### OUR LETTER BOX.

**Address (James Foot).**—The address you require is Mr. Edwin Crook, Carnaby Street, Regent Street, London.

**Treatment of Goslings (G. S.).**—The method of rearing the Chinese Goose and Canada Goose is not materially different from that adopted with the more common kinds. The goslings should for the first few days be kept warm and dry, and fed upon hard-boiled eggs and bread crumbs or rice well mixed up with some green food, such as young green onions (of which they are especially fond) or grass. This food may in a few days be changed by substitution of barley meal or oatmeal and middlings for the eggs, rice, and bread crumbs. India meal may also be given occasionally. The mother should be cooped after a day or two on a grass run, so that the goslings can have access to the grass. They will at first require five or six feeds daily, but the number may be decreased gradually until they are fledged, when grass will form their staple food, and they will only require a small meal of grain or meal once or twice a day. When the goslings are pretty hardy the mother may be allowed to range with them, and the gander will aid her in protecting them. They may then be allowed to swim in a pond for a short time daily, but it is not safe to give them complete liberty in this respect until they are fledged. Ordinary rain will not hurt them, but long exposure to very heavy rains, especially for the first week or two, should be avoided. It is not safe to trust to the mother protecting them from rats; they should be shut up securely at night until fledged. Their food should not be mixed in such a very liquid state as that they can daub themselves with it, and by the use of long narrow troughs as feeding vessels any risk from that cause can be avoided.

**Canker in Pigeons (Suburban).**—The disease affecting your young Pigeons is that known as canker. As it prevails throughout your loft it evidently depends on some general cause. You are either feeding the birds on unwholesome food, or, what is more probable, your loft or pigeon-house is overcrowded, the dirt is allowed to accumulate, or there is insufficient ventilation. Look well after the general health, and you will have no more canker. The safest application to those birds already cankered is powdered burnt alum, to be applied after removing the white matter.

**Canary Dying (G. Walker).**—It is impossible without details of symptoms, &c., to tell the cause of your Canary's death, or to recommend treatment for the other. From the appearance of the body we suspect internal inflammation, and fear there is something wrong with your system of feeding. You had better purchase some work treating upon Canaries. You can have "The Canary and Other Song Birds," post free from our office for 1s. 7d.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881.  April		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun. 24		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Mon. 25		29.996	49.3	43.7	N.	46.3	58.3	41.3	101.3	38.4	—	
Tues. 26		29.913	54.5	50.6	W.	47.3	61.7	46.3	93.7	41.2	—	
Wed. 27		29.928	46.3	43.7	W.	47.5	57.0	39.7	112.7	35.0	0.017	
Thurs. 28		30.161	50.7	45.4	S.W.	47.0	58.7	38.2	96.8	32.5	—	
Friday 29		30.246	51.6	46.7	N.	47.4	60.6	39.4	97.1	32.0	—	
Satur. 30		30.159	53.0	50.6	W.	48.0	63.7	46.3	93.3	38.7	0.038	
Satur. 30		29.878	58.0	51.7	S.W.	49.0	64.2	48.5	111.5	46.6	0.020	
Means.		30.040	51.9	47.5		47.5	60.2	42.8	101.0	37.8	0.105	

#### REMARKS.

- 24th.—Mild calm pleasant day with some bright sunshine; overcast at intervals.  
 25th.—Fair and warm; very slight shower in forenoon.  
 26th.—Cool, slight showers; shower of soft hail at noon; lightning and thunder at 1.35 P.M.; gusty wind.  
 27th.—Fine, overcast at intervals.  
 28th.—Fine bright morning; dark and stormy-looking from 1 P.M. till 3 P.M.; fine evening.  
 29th.—Fair, but dull and close.  
 30th.—Warm and fine till 5.30 P.M. then slight rain.

On the whole rather a dull week; rain threatening almost constantly, though very little fell. Mean temperature about 6° higher than that of the preceding week.—G. J. SYMONS.



12th	TH	Royal Society at 4.30 P.M.
13th	F	
14th	S	Royal Botanic Society at 3.45 P.M.
15th	SUN	4TH SUNDAY AFTER EASTER.
16th	M	
17th	TU	
18th	W	Meteorological Society at 7 P.M., and Society of Arts at 8 P.M.

## DISBUDDING.

**D**ISBUDDING is the removal of growths not only not necessary, but absolutely prejudicial to the perfecting of the present and future crops of fruit. It may be contended that no disbudding occurs in nature; but no one can fail to see that the strong outgrow and destroy the weak, until the most crowded branches are rendered destitute of buds by the exclusion of light and air. We do not find acorns in the interior of spreading Oaks, nor Apples in the centre of an unpruned Apple tree, but the fruit is borne on parts enjoying full exposure to the sun.

Disbudding as an art of culture is essential; first, to prevent the production of parts not required; second, to prevent waste of alimentary matter; and third, to preserve the symmetry of the trees.

Disbudding is considered essential in the successful cultivation of plants or trees. All are agreed as to its necessity for producing superior flowers or fruit, excepting a small minority who are better satisfied with quantity than quality. Such will cling to a cluster of three small Roses, just as if one exhibition bloom was not better; and to standard fruit trees as the only method of obtaining profitable results. But those holding these views are in a minority, by far the greater majority preferring, and most worthily, to produce the highest examples of culture. Summer pruning may be disbelieved in or neglected, and growths allowed to be made that will rob whilst active, and be cut away when at rest after the mischief is done. The disbudder acts differently; he allows no new parts to be formed but those essential to the formation of the tree, the perfecting of the present crop of fruit, and making provision for future crops.

It is only of late years that disbudding and summer pruning have become part of the practice of cultivators. I am old enough to remember when those operations were almost nil, and the winter pruning and nailing of fruit trees no pleasant operation. Happily things are changed. The minds of some may linger over the "good old times," but few, I imagine, would like a return to them, certainly not to old-fashioned winter pruning, which can only have this much said in its favour, that provision was made in summer for plenty of work in winter.

It is generally conceded that disbudding exercises a check upon the growth, especially of the roots, from the well-known circumstance of there being reciprocal action between the roots in the soil and the growth above ground. Examine a plant, herbaceous or ligneous, when starting into growth, and its roots

will be found in a more active state than appears necessary for the requirements of the plants at that time. If this were not the case any operation interfering with the roots would not be better performed when the growth was completed, yet whilst there is foliage to induce the emission of fresh roots so that the plant or tree may feel no loss of them, as would be the case if the operation were done between the fall of the leaf and starting into growth. Transplanting fruit trees or lifting and transplanting Vines is not advisable in spring, because there are no active roots then, but the stored-up sap in ripened wood is usually sufficient to maintain vitality until food-supplying roots are formed. Ripe wood cuttings will root although every bud be removed; therefore leaf-development is not absolutely essential to root-formation, and unless this were the fact disbudding would be attended by disastrous consequences. Such, however, is not my experience when the work is carefully done; it is only when done roughly and thoughtlessly by the ruthless removal of many growths and much foliage at one operation that the practice is injurious, as is shown in the Peach by the fruit dropping, in the Vine by the Grapes shanking, and in the Cucumber by the fruit gangrening and being stunted and deformed.

Yet, while I do not advise anyone to leave a well-used road for a smooth untried byepath, I have been led to venture on what may seem a departure from the principles of disbudding by deviating somewhat from the stereotyped advice given on the subject—namely, "Don't be in a hurry in disbudding, and only remove a few shoots at a time." Now, in Peach and Nectarine trees there are shoots that have only a wood bud or two at their base and another at the extremity, and between those are fruit buds, usually single. As a rule the blossoms on such set much better than on stronger shoots with triple buds—i.e., two fruit buds, and a wood bud between them. A shoot of the former has only three wood buds, and of the latter a dozen, or even a score, whilst the difference in the number of fruit buds is not material. Clearly growth is not essential to secure a good set with the weak shoot, and if we remove every wood bud on a level with the bloom buds we secure a better set of fruit than with a growing shoot between every pair of blossoms. The set is not, therefore, dependant on the growth being allowed to extend to produce root action, for I apprehend the petals do more for the organs of fructification than any amount of leaf-development. To remove all the wood buds on a level with or above the blossom is, of course, fatal to the crop, and is only alluded to as showing that leaf-growth does little or nothing towards aiding the blossom of the Peach and Nectarine to set. A little consideration will show that this very early disbudding is not really in conflict with the principles above mentioned, as removing the buds before the foliage has formed cannot be regarded as removing a large quantity at one time. On the contrary, it prevents the necessity or excuse for that dangerous practice; it prevents also the strong leaf-growth appropriating the sap that is required by the embryo fruit; therefore I submit it is sound practice to remove very early a portion of the wood buds where they abound amongst the blossom. As soon, therefore, as the buds commence swelling I begin disbudding, and by the time the flowers are fully expanded I have no more growths advancing than are necessary to effect the maturity of the fruit and to make provision for future crops. This is simply to have a growth at the base of the present bearing wood and another

above the highest blossom or level with it, the shoots at the base, 15 to 18 inches asunder, providing for the due furnishing of the tree, the branches of which are from 12 to 15 inches apart. As before stated, there is no check to the system of the plant, as would be the case were growth allowed to be made and afterwards removed; but the nutritious elements are reserved for the present crop, and the production of those only for future use.

Similar remarks apply to Vines. No cultivator would tolerate longer growth of the shoots than is necessary to ascertain the fruitful and best breaks, for every growth in the shoot that must come away takes from the vigour of that retained. It is so with Roses. Weakly buds are removed, so that the more promising shall have the support the weak growths would if retained appropriate, and the same principle applies to every plant or tree the flowers or fruit of which are desired of the highest excellence. To effect superior results concentration must be made of the supporting elements upon the object in view; the full forces of the plant must be exerted in abstracting food from the soil, and assimilating the same by the full exposure of the foliage to light and air.—G. ABBEY.

#### ASTERS, MARIGOLDS, AND VERBENAS.

THESE are flowers which I highly esteem, and I would not like to be without a representative collection of them. The culture of each is by no means difficult, and they are certain to repay any care bestowed on them. The two first-named receive exactly the same treatment. We sow the seeds not earlier than the middle of April in cold brick frames, allowing a light for each sort of Aster grown, the spaces being marked off with a stick, and the seeds sown thinly between these marked lines. The young seedlings have thus plenty of room for development. Any rich light soil may be employed; a thin layer of old Mushroom bed manure placed in the bottom of the bed being a suitable foundation, and the seeds merely require covering with some of the sifted soil. Mats thrown over the light to afford shade is all that is necessary until the seedlings are through the soil, when ventilation must be attended to and the mats dispensed with. A wet day towards the end of May is chosen on which to transplant the seedlings in their permanent positions, care being exercised to save as many roots as possible. A mixture of soil and water about the consistency of paint is prepared, and the roots of the plants are drawn through this. If the weather is dry shallow drills are drawn and water is run down each; this keeps any dry surface soil from falling into the holes made by the dibber. The mud paint keeps the roots fresh whilst the plants are becoming established. If a little old dung can be placed over the beds there will be no necessity for supplying water more than once or twice. I find such a mulching of the greatest advantage to many plants. Our Aster ground is always deeply trenched and well manured in the early part of winter. The distance from row to row should be 15 inches, and between the plants from 9 to 12 inches.

I only grow four varieties—viz., Betteridge's Quilled, Victoria, reflexed; Truffaut's Paony-flowered, sent to me this season as the best incurved variety; and the Dwarf Chrysanthemum-flowered Aster. In staking short stout sticks are inserted along each row, to which a strong string is fastened; the plants are secured by a single tie to the string. The quilled varieties are the only ones which as a rule require any support. Where extra fine flowers are desired it will be well to limit the number of flowers to half a dozen on each plant, removing all the side buds. Not only the colours of the flowers but the florets themselves are so much injured by a shower that it is necessary to cover with glass those blooms intended for exhibition. This is easily accomplished by placing sashes over the beds, but the best results may be obtained with wide-mouthed tumblers one above each of the finest blooms. It is also necessary to shade them from the sun. Asters amply repay for "dressing;" in fact, a very good but rough flower has no chance beside a smaller one which has been dressed. The same remark applies to African and French Marigolds. These require a larger amount of space for development than Asters—about 24 inches by 18 being close enough. It is somewhat difficult to obtain a good strain of these, consequently when such has been secured some of the best flowers should be preserved for seed.

I always grow named Verbenas. They may be cultivated either in beds or in pots; if in beds a rich soil with mulchings of decayed dung are needed to induce Verbenas to make strong healthy growth. I have never had them do well except under the above conditions. Plants from cuttings struck about the middle of April are the best for placing out towards the end of

May. They may be planted a foot apart, or 2 feet if the plants can be allowed time to cover the ground. If they are making about five young growths when planted out it will only be necessary to thin out the side growths if they are likely to become crowded. Flowers for exhibition should be covered each with a small square of glass painted with milk and whiting to shade them from sun.

Cuttings for stock plants to stand the winter should be inserted in a cold frame not later than the second week in August. One plant of each sort is quite sufficient to keep, and during winter they should be slowly growing. In pots for flowering they are sometimes unsatisfactory. What they require is a very rich open soil, the pots to be not larger than 6 or 7 inches in diameter, and the plants thrive in a similar temperature to that required by Fuchsias. Mildew and green fly must never be allowed to increase, as both are certain to destroy the plants in a very short time. Liquid manure is very necessary. To those who have not grown Verbenas a dozen or two of the best kinds would prove welcome. I occasionally send for a few per post to nurserymen who make these a speciality, and would advise those desirous of growing them to do the same.—R. P. BROTHERSTON.

#### FRUIT TREES GROWN ON "NATURE'S PLAN,"

##### MR. SIMPSON'S EXPLANATIONS.

It is agreeable to know that Mr. Simpson admits the review to which he refers is "fair and impartial." The explanation he has tendered relative to the non-engraving of the "extension" Peach tree planted in 1866 is perfectly satisfactory, but that he should regard such a tree as grown on "Nature's plan" is not a little extraordinary.

To state that the tree he has described on page 354 "belies" the results that have been attributed as the ultimate outcome of "Nature's plan" is applying a strong term to support an argument that is obviously founded on false premises. If your correspondent seriously thinks that horticultural readers will regard a tree that has been planted fifteen years, and until two years ago has been restricted in growth, a fair type of "Nature's plan," he does not pay a high compliment to their judgment. The tree is 32 feet wide, which means the branches are 16 feet long—a lateral extension that has been reached in fifteen years. It would be a wonder indeed if an "extension" tree thus restricted had branches naked at the base.

Mr. Simpson has certainly weakened his case by adducing such a tree as that (which is no doubt good in itself and all that Mr. Fowler has said of it) as a "living contradiction" of the operation of a law of Nature according to which trees in a natural state become, when of matured age, destitute of foliage at the base of the branches. Most boys in their bird-nesting days know that such was the case then as it is the case now, and will continue as long as trees are permitted to attain maturity without being checked by accident or restricted by artificial means.

As Mr. Simpson has submitted an example of what he terms the "extension" system, it will be fair to allude to some examples of Peach culture on what he would term the "restrictive" plan—trees that have been regularly and systematically pruned. The writer has planted and trained a Peach tree that attained a lateral extension of 60 feet. The branches of this pruned tree were 30 feet long, and were produced in rather less time than that in which those of the "extension" tree referred to grew 16 feet. A tree, not planted by the writer, but by a gardener from whom he gained valuable lessons in Peach culture, proved on measurement to have a spread of 90 feet. The particulars of these trees are known by the Editor. Thus we have "extension" (non-pruned) and "restriction" (pruned) trees side by side, and we arrive at the amusing result that trees have been grown on the latter system with a lateral spread twice as great as the tree adduced as a type of the former. There is evidently a mistake somewhere: it is easy to point out. Mr. Simpson's tree is a mixing-up of restriction and extension; and although it may be a most excellent specimen, to regard it as grown on "Nature's plan" is a self-evident fallacy.

Our author's remarks on Vines call for no comment. A method which in Mr. Simpson's hands may prove successful might be a failure if followed by others who do not so well comprehend it.

Your correspondent wishes it to be known that he "does not condemn pruning." That is quite clear. No one on reading his book can accuse him of doing so. There is sufficient of condemnation in it without that, tempered, however, and hedged by qualifications in such a manner that he has no right to complain if doubts are left on the minds of readers as to the precise nature of the lessons he seeks to inculcate.—YOUR REVIEWER.

LOOK AFTER THE GRUBS.—In his amusing and practical paper in the "Rosarian's Year Book for 1881," my excellent friend the



Rev. H. B. Biron says, "One word of parting advice. There is an enemy which you must meet in the early spring; worse than mildew, worse than aphid, worse than sawfly, worse than Rose beetle, worse than ants—yes, worse than all these together; and that is the bud-worm. Search for him carefully: he does his mischief silently but so surely." And in a letter I had from him the other day he says, "Fine weather for the caterpillars! I killed fifty of the little beggars on two plants of Le Havre, and doubtless there are more left;" and from other quarters I have had notice of the abundance of this enemy, so now is the time to make the onslaught. They are very tiny at present, and are the more easily killed.—D., Deal.

#### PINK ZONAL PELARGONIUMS.

THE abundant flowers of the magnificent variety Lady Sheffield have been well described as possessing a combination of violet, purple, and pink hues. Its trusses are very large, and so freely produced that the plants when in bloom are literally masses of flowers. It merits extensive culture both for specimen plants in pots and for beds, where it is certain to be much liked, large masses of it having a singularly bold and striking effect.

While looking lately over such pink-flowered varieties as I have blooming in pots, I asked my young friend, who last year chose *Stephanotis* as "the sweetest flower that blows," to select the best pink *Pelargonium*. She soon chose Mrs. Leavers, a deep rosy pink of a much more cheerful tone than Lady Sheffield, and with such fine trusses of large handsome flowers that preference will probably be given it by many others. "But," said I, putting a plant of my favourite, Mrs. Wright, beside it, "surely you overlooked this?" "Oh, that is lovely!" was the answer, followed by a request for the plant itself, which was eventually carried off to be cherished as a treasure. These three varieties were raised by Pearson, and they form a charming trio which I cordially recommend to general notice. Mrs. Wright is probably most valued for pot culture from the good form of its bright pink flowers. The trusses are of medium size, which renders them of especial value as cut flowers.

From several other varieties *Parnassus* may be selected as possessing distinct and striking characteristics. It is of the Nosegay type, has abundant large trusses of deep pink narrow-petalled flowers, is of a compact bushy habit of growth, and has handsome well-marked foliage, all which render it worthy to take rank among our best bedding varieties.

All these are infinitely superior to our old friend Christine, and yet it is questionable if any of them are so eagerly sought after or so briskly propagated as it was. When it was introduced bedding-out was at its zenith, and Christine was regarded as a gem of the first water, without which no combination of colours was complete. But now who would give it a second glance except those of us who remember that its advent marked an era in the development of its class?—EDWARD LUCKHURST.

#### RANUNCULUSES.

AN extensive family of mostly showy plants, which give the name to the whole order. Many of them are too inconspicuous to find a place in cultivated ground, but even some of these in a state of nature are perfectly charming. As an example take the *R. bulbosus*, which we all as children have gathered handfulls, by the name of Buttercups, Kingcups, or Goldencups. In the present day, however, we have such a number of really grand kinds to select from, that these old and individually inferior forms must give place. Ranunculuses are numerous and widely spread. Some are aquatics, and all love moist situations, although the alpine kinds must have good drainage, or the least stagnation will kill them. Little more need be said respecting their cultivation, as it is extremely simple, and good loamy soil will suit the border kinds, whilst the Alpines should be planted in a mixture of peat, loam, and river sand. All the species are more or less acrid.

*R. aconitifolius*.—This is a large-growing species, in good soil attaining a height of 2 to 3 feet, and although rather coarse is a fine old border plant. Its leaves are palmately divided; lower leaves stalked, upper ones sessile. Stems branching, producing an abundance of large pure white flowers. It prefers shade. May and June. Alps of Europe.

*R. aconitifolius flore-pleno*.—An old-fashioned border plant, far less seen than it deserves. The flowers are not very large, but are very double and pure white. This variety is the "Bouton d'Argent" of the French, and was well known some years ago in English gardens by the name of "Fair Maids of France." No

garden should lack this charming and useful flower. May and June. Alps of Europe.

*R. acris flore-pleno*.—The "Boutons d'Or" of our French neighbours, yellow "Bachelor's Buttons" of English gardens, is a double-flowered form of an English species plentiful in all pastures. It grows about 2 feet high, and the flowers are extremely useful for cutting, forming a pretty contrast with the pure white of the preceding variety. May to July. Britain.

*R. alpestris*.—A dwarf neat species, which must be placed on some sheltered spot in the rock garden where it is not liable to be overrun with coarser-growing plants; but it should be so placed that it is exposed to the sun during some portion of the day. It usually attains a height of 3 to 4 inches, and becomes tufted. Leaves stalked, roundish, and deeply three-lobed, colour deep shining green. Flowers mostly solitary and pure white. April and May. Native of Tyrol and various other mountainous parts of Europe.

*R. amplexicaulis*.—A very distinct and handsome plant, usually



Fig. 83.—*Ranunculus amplexicaulis*.

about 12 inches high. Leaves entire, ovate lanceolate in shape, the bases clasping the stem. Scape much branched, which, together with the peduncles, are quite smooth. Flowers pure white, in some varieties stained with yellow towards the base. April and May. Alps of Europe. The woodcut represents a spray from a plant of this species growing on the rockery at Chiswick, where its large white flowers are very freely produced, and are very attractive. These are also useful for cutting, as they remain in good condition for a much longer period than the majority of single-flowered Ranunculuses, and wherever simple flowers are appreciated the plant should be grown.

*R. asiaticus*.—This species has received the attention of the hybridiser, and its varieties have become florist flowers, the beauty of which it is scarcely possible to adequately describe. Although not suitable for the rock garden we could not pass them by in silence, because if planted in clumps in the border

during the month of February they produce handsome blooms, and are very effective during early summer. The species originally came from the Levant.

*R. bulbosus flore-pleno*.—This is a double form of the "Buttercup," the flowers resembling somewhat those of *R. acris* fl.-pl.; but the present variety is not more than half the height, so that those wanting a dwarf form can be accommodated. April to June. Britain.

*R. cortusae-folius*.—This is a very fine species, although a tall grower; it is, moreover, somewhat tender as far as our experience extends. The usual height is 3 to 4 feet. The radical leaves are stalked, somewhat cordate in shape, and unequally lobed. Stem leaves much divided into lanceolate segments, whilst the upper ones are entire. The flowers are yellow, large, and spreading, produced in dense corymbs. It is also known by the name of *R. grandiflorus*. April to June. Canary Islands.

*R. glacialis*.—If we had to mention the somewhat tender constitution of the last-named plant, we have in the present species just the extreme, for it grows naturally high up in the mountain regions of Europe, near the limits of perpetual snow. Like all plants from great elevations it is dwarf in habit, usually about 6 inches high, but sometimes reaching to 9 or 10 inches when growing lower down the mountains. The radical leaves are stalked, palmately divided, deep green; peduncle mostly one to two-flowered, but sometimes more are developed. Flowers large, pure white inside, but tinged with purplish rose on the exterior. May. Alps of Europe.

*R. gramineus*.—Although a native of the mountains of our own country, this plant is sufficiently distinct and beautiful to find a place in the cultivated rock garden. It grows about a foot high, with sessile, entire, narrow, grass-like leaves. Flowers large and showy, yellow. April and May. Mountains of Wales.

*R. Gouani*.—This is a fine border plant and a very distinct species. It grows from 12 to 18 inches high. The radical leaves stalked, unequally lobed; stem leaves sessile, palmate, bright green. Flowers large, solitary, bright shining yellow. May. Pyrenees.

*R. montanus*.—A little gem for the rockery. It is tufted in habit, and seldom exceeds 3 to 4 inches in height. The radical leaves are tripartite, bright shining green; stem leaves sessile, with linear segments. Flowers very large, solitary, and brilliant yellow. May. Alps of Europe.

*R. parnassifolius*.—There is something so thoroughly distinct in the habit of this plant that an ordinary observer would never think it is a Buttercup. It attains a height of 6 to 9 inches. Radical leaves entire, stalked, subcordate, dark brownish green, and leathery in texture; stem leaves sessile, ovate lanceolate. Spike branching, bearing several large pure white flowers. May and June. Pyrenees.

*R. rutae-folius*.—Here we have another dwarf-growing distinct plant. The leaves are pinnate with multifid lobes, which give them altogether quite a different appearance to the Crowfoot family. The stems attain a height of about 6 inches, and are usually single-flowered. The individual flowers are very large, and are composed of numerous petals; the colour is pure white, with orange-yellow centre. May. S. Europe.—H.

#### TRAINING PEACH TREES.

THE Journal is always so crammed with practical articles that one often feels shy in taking up a subject. However, I should like to have a few lines, if you can spare space, on the subject mooted by Mr. Pettigrew at page 327. With regard to the system of training lately designated "extension," there is no doubt of its having been in constant application in some gardens for many years. Last spring I visited Mr. Shearer, then gardener at Yester. He showed me a Peach tree, certainly the best trained I have yet seen, thinly furnished with young stout shoots from top to bottom and end to end of the house, and with a stem I took for half a century's growth, and he planted it about thirty years ago, and under the system he employed it was as robust as a tree of five summers' growth. Nevertheless, up to late years I do not think the non-shortening system has been common. Now, however, many young gardeners are working their Peach trees on this principle.

I should not like to dispute Mr. Pettigrew's assertion that trees trained to a trellis under the glass give the best results; at the same time large crops are a certainty every year with trees planted on back walls, provided the house is light and heated. In our own case we could not wish for larger crops than we gather year after year from trees under these conditions; and we are just enlarging an old Peach house, which had trees trained close under the glass, and will have the back wall covered with trees,

and an "old-fashioned turned-over trellis in front." We secure one-third more space for training than is possible under the other plan. The house is a lean-to, and will be 18 feet wide. It was found after calculating the results in various ways of training that the plan adopted would be best.—R. P. BROTHERSTON.

#### NOTES ON PHLOXES.

AMONGST all hardy flowers I find none so useful as these. Their culture is easy, while their rich and variedly coloured flowers are always welcome. For a considerable time back I have annually added fifty plants to our stock, and I intend following up this system.

The present time is the best in the year for making such provision as will insure a display of these plants during the summer months, and those who secure a good selection now may rely on being amply repaid in a few months by a rich harvest of flowers. Plants only propagated last autumn and placed in the borders now will bear one or more spikes of bloom before the season is over, and others divided will soon become as useful as if they had never been disturbed. Indeed I think it is much the surest way of inducing plants to grow after being divided if this operation is deferred until growth has well commenced. Then it is not necessary to take up the whole of the plant to be divided, but the soil may be cleared away from the stems, and the root and the young plants be taken without removing the centre. Varieties of the least merit are hardly ever divided, but remove them to positions of the least importance, and fill up the places they occupied with better forms. Work of this kind should be attended to at once. We always obtain our new Phloxes in small pots; sometimes they have commenced growing, at other times no growth is visible, but such we always keep in a cold frame or sheltered nook until well started, when they are planted out. Some kinds bloom early, others late. Some are tall, others dwarf. Position and culture will not wholly change their characters in these respects, but in sunny places many will bloom earlier than they would do in a shady position. All soil for Phloxes should be deeply dug and well manured. When this is done the after culture for several years will be of little importance, and at all events manure dug in between the plants will be sufficient to insure their development.

Their present culture should consist of dividing the plants to increase stock on making new plantations with young plants. After planting, if the weather is dry one good watering should be given at the roots, and before growth has become so tall as to be broken by the wind a stake should be placed to each, and tying should be done at intervals as necessary. Where extra fine spikes are required for exhibition or any other purpose a dressing of strong manure should be spread round the stems, and all the weakest stems should be cut out close to the bottom and only the strongest be allowed to grow. For exhibition we have sometimes only had two spikes from a strong root, but for general decorative purposes every shoot may be allowed to grow and flower. As many of your readers will soon be filling their flower garden beds for the summer, it may not be out of place to say that for the centres of beds no plants are better suited than Phloxes, and if the best early and late varieties are planted together they will produce a mass of flowers during a long period.

Phloxes are not grown so extensively as they deserve, especially for park and general decoration, and no doubt they will receive much more attention in the future. The following names of some of the best varieties in cultivation may be useful to some readers:—Dwarf early varieties: Mrs. Morrison and Mrs. Garrett. Taller varieties: Beauty of Edinburgh, George Eyles, Redbraes, Mrs. Guthrie, President, Mrs. Ritchie, Mrs. Miller, and Indian Chief. Late varieties: Henry Cannell, James Cocker, Professor Blackie, Thomas Swanston, Pilrig Park, John Forbes, David Thomson, James Mackay, Jennie Grieve, J. Muir, and David Syme. It may be mentioned that these are chiefly seedlings which have been produced by Messrs. Dickson & Co., and are welcome additions to this favourite flower.—W. M.

THE EGGS OF THE VAPOURER MOTH (*ORGYIA ANTIQUA*).—There is hardly a garden where in the winter season one may not detect on a bough, stem, or perhaps on a wall or paling, the cocoon of the female insect studded with the eggs that are to hatch in spring. By an odd error of instinct, the caterpillar will in its wanderings fix the cocoon it spins in a corner away from foliage, the result being, as I have several times noticed, that the young brood die of starvation. When it has become of some size, the peripatetic powers of the Vapourer caterpillar would win the approbation of a walking Stewart, though, when first hatched, as is usually the case with caterpillars, they cannot make any



progress until they have eaten. One of the few caterpillars that can eat almost any leaf that is handy, it is yet not sufficiently abundant to require measures for its extermination in our gardens, where its colouring and its brushes of hair make it conspicuous on shrubs or trees. I refer to it more particularly to suggest as a subject for inquiry, whether it is occasionally eaten by insect-loving birds? I believe so. And I would note how curious is the fact that this species is distributed everywhere, although the females cannot fly or crawl; therefore this is due to the wandering habit of the caterpillars, seldom to that unintended transference by man's agency which has helped to make some insects common.—C.

#### PLANTS RECENTLY CERTIFICATED AT REGENT'S PARK.

At the last Exhibition of the Royal Botanic Society at Regent's Park a number of plants were honoured with certificates, and as we were unable to accord space for their description in the report of the Show a few notes indicating the characters of the plants will be acceptable.

Botanical certificates were awarded to Messrs. Veitch & Sons, Chelsea, for the following:—*Dracæna Lindenii*, a very distinct plant, with leaves 8 to 9 inches long, about 3 inches broad, streaked with green and a yellowish tint, slightly arching or recurved. It will probably prove useful for decorative purposes. *Goniophlebium lachnopus*, *Asparagus tenuissimus*, *Aralia Kerchoviana*, and *Davallia elegans polydactyla*, which were also certificated at Kensington on the day previous, and described in our issue of the 28th ult. To Mr. B. S. Williams, Upper Holloway, for *Croton Lady Zetland*, a beautiful variety with gracefully arching leaves, 8 to 12 inches long and 1 inch broad, bright red in the centre, margined with dark green and bright yellow. This *Croton* appears to colour very well in a young state. *Philodendron elegans*.—A neat Aroid. Leaves 10 inches long, several inches less in breadth, pinnatifid or almost pinnate, the segments narrow and light green. To the General Horticultural Company, Regent Street and Anerley, for *Rhodea japonica aurea*, a hardy variegated plant, which, however, succeeds in pots, and is useful for green-houses or conservatories: the leaves are 10 inches to a foot long, about 2 in breadth, slightly drooping, and striped with green, yellow, and white; *Dracæna Alexandra*.—Elliptical leaves, 3 or 4 inches broad, dark green centre and white margins; *Dracæna Rossi*.—A variety of neat habit, with fine dark crimson foliage; *Dracæna Recurva*.—Fine broad leaves, streaked with green and bright pink; *Cyperus laxus variegatus*.—A prettily variegated *Cyperus*, which was certificated last year by the Royal Horticultural Society—the specimen shown at Regent's Park was in excellent condition, and proved that the honours which have been accorded it were well merited; *Caladium Frederick Bause*.—A very dwarf and distinct *Caladium*; the leaves 4 or 5 inches long and 3 broad, very bright shining red in the centre, neatly margined with green. The height of the plant shown scarcely exceeded 6 inches, and if it continues as dwarf as that it would make a good companion for the favourite *Caladium argyrites* in the front row of groups of plants. To Mr. Croucher, gardener to J. T. Peacock, Esq., Sudbury House, Hammersmith, for *Agave Parryi*, a dwarf form, with short glaucous leaves arranged in a rosette-like manner; *Agave Huntii*.—Leaves pale green, yellow in the centre, and the margin devoid of spines; *Yucca Peacockii*.—A distinct species with long narrow leaves a foot or more in length; *Odontoglossum crispum grandiflorum*.—A handsome variety, bearing large flowers spotted with bright chocolate.

Floricultural certificates were awarded to Messrs. Paul & Son, Cheshunt, for *Rose Ferdinand Chaffolte*, a Hybrid Perpetual variety with large dark crimson flowers of good form. To Mr. C. Turner, Slough, for *Auricula Mrs. William Brown* (Turner), a white-edged variety with dark body colour; flowers symmetrical, and truss compact. Also for the Alpine varieties *Philip Frost*, purple shaded, white centre; *John Ball*, bright maroon, deep yellow centre; and *Lizzie*, rich purple shaded, light yellow centre. To Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, for *Auricula Hilda*, a fine green-edged variety, with large flowers of excellent form and black body colour. To Mr. R. T. Veitch, Exeter, for *Rhododendron exoniense*, described last week. To Messrs. Fisher, Son, & Sibray for *Rhododendron Lady Alice Fitzwilliam*, described on page 336 of the present volume; and to the General Horticultural Company for *Gloxinia Mrs. Bause*, a handsome variety with erect, large, well-formed flowers of good substance; white, with a ring of pink in the throat.

**LICHENS ON FRUIT TREES.**—Mr. W. Thomas asks me to explain the reason why it is that Keswick Codlin Apple trees are covered

almost completely with lichens and other parasites, whereas on the Winterbox planted side by side with the Keswicks not the slightest trace of lichens is to be seen. It seems very curious. Perhaps readers of the Journal can explain. Both trees are the same age—viz., fifteen years.—W. ROBERTS.

#### GARDENERS' ROYAL BENEVOLENT SOCIETY.

A SUB-COMMITTEE was formed last year to consider a proposal for increasing the pensions of the Institution, and for raising the amount required for carrying out that excellent project. Having obtained the opinions of a number of representative horticulturists and estimated the cost of carrying out the scheme, the Committee decided to recommend the following resolutions for adoption:

- 1, That it is desirable that the pensions given by this Institution should be increased to £20 and £16 respectively.
- 2, That having regard to the large majority of answers from the gentlemen whose opinion was solicited, and the estimated expenses for carrying out the scheme suggested by the Secretary, they recommend that a simultaneous collection be made in every garden and horticultural establishment in Great Britain and Ireland on Saturday the 30th July next.
- 3, That the fund thus proposed to be raised be designated "The Gardeners' Benevolent Pension Augmentation Fund."
- 4, That the amount raised be kept separate and distinct from the general fund, and be invested in the names of trustees, and the interest thereon be reinvested until such time as the Committee shall see fit to recommend to the subscribers an augmentation of the pension.
- 5, That in the event of the scheme proving successful it be continued annually.

The Sub-Committee in arriving at these conclusions have given the subject referred to them their anxious and earnest deliberations, and they feel convinced that if the gardeners generally will only give the Committee their assistance and co-operation the success of the appeal is not only certain, but it will be the means of bringing the Institution prominently before the notice of many who are unacquainted with it, and adding considerably to its annual revenue.

Should this report be adopted your Committee recommend the re-appointment of a Sub-Committee, with powers given it to carry out the scheme and arrange details.

The various forms, &c.—viz., the original letter, the collecting card, &c., are appended.—JOHN LEE (*Chairman*), ROBERT A. OSBORN, J. WILLARD, W. H. GULLIFORD, H. DICKSON. April 21st, 1881.

We trust that a scheme so worthy, and which appears to us of great practical importance, will be adopted, and we trust that a spirit of emulation will be incited in gardens throughout the country in carrying it out. If all head and under gardeners will contribute their mites, even if these are individually small, a substantial—even a noble—sum may be provided for an object that cannot fail to commend itself to all thoughtful men. We earnestly hope that the effort that is being made will prove eminently successful, and will receive the sympathy and active co-operation of the class in whose behalf it is instituted—namely, aiding in the hour of necessity gardeners and widows of gardeners in this country.

#### ODDS AND ENDS.

**Forced Strawberries.**—Mr. Abbey has found that Vicomtesse Héricart de Thury has not been quite satisfactory for early use. I have found it most serviceable. The difficulty is, that it often forms a number of small crowns late in the season; if these are prevented, or removed promptly, the central crown is the finer and the crop better. Dr. Hogg for ripening now is one of the finest, large, good in colour and rich in flavour. These two varieties I am informed have been remarkably fine this year at Stillyans, the residence of Lady Dorothy Nevill, as grown by Mr. Vair the gardener. Plants of the first-named variety that have been forced early and the foliage kept in good condition will, if partially shaken out, repotted, and properly attended to, produce fine crops in the autumn; in fact they will often do so if planted out in rich soil in the open garden. La Grosse Sucrée is very extensively and successfully grown in the Royal Gardens, Frogmore, and it is undoubtedly a valuable variety for forcing.—J.

**Noblesse Peach for Early Forcing.**—That this variety is not equal to Royal George for certainty of crop will not be disputed, but it sets and swells as freely as any other at an early season. It certainly has one great fault—viz., dropping its buds, and very vigorous trees have twin, triple, and sometimes more pistils to a flower. Grosse Mignonne also has the latter peculiarity. Under less forcing the defect of dropping the buds is reduced, also the monstrous pistils are not so marked; and outside—i.e., against a wall, it does not drop a bud, the flowers have not more than one pistil, nor are there any flowers almost devoid of petals, nor the pistil so short as not to rise above the anthers, as is common with trees



subjected to early forcing. Considering its very superior quality it is valuable for forcing to ripen in early June; indeed for flavour it has no equal, and in setting it is fully equal to any, Royal George excepted.

*Budding Established Peach and Nectarine Trees.*—It sometimes happens that varieties are planted which are not true to name, or the sorts are not suited for the purpose. Instead of removing the trees to give place to young trees, buds of some approved kind may be inserted in the current year's young wood as near to their base as practicable, and the growths having proper attention will afford a change of kind in a couple of years without loss of crop in the meanwhile. This method is also applicable where a long succession of fruit from one tree is desired, which is often advisable when the demand is moderate. It is better to have three or more varieties on one tree which can be allowed fair extension than the same number of trees when there is really but room for one. Granted a tree of Royal George to occupy a trellis 12 feet by 10 feet, or it may be twice the area, or 240 square feet, a sixth may be budded with Early Beatrice to afford a few dishes of fruit six weeks in advance of Royal George; another sixth with Early Alfred or Hale's Early, which will follow in fourteen to twenty-one days; a third sixth with A Bee, coming in after the other two in a similar time; a fourth sixth Royal George; a fifth sixth with Violette Hâtive, succeeding Royal George; and the sixth and last part with Stirling Castle; this will give a succession during eight to ten weeks. If to those mentioned be added Grosse Mignonne, Noblesse, Bellegarde, Dymond, Barrington, and Late Admirable, we have a dozen of the choicest and most reliable Peaches for any purpose. Nectarines may be changed in a similar manner; Peaches may be inserted in Nectarine trees, and *vice versa*. Lord Napier, Stanwick Elruge, Violette Hâtive, Humboldt, and Victoria are good Nectarines.

*Sulphuring Hot-water Pipes for Destroying Red Spider.*—This pest has had a fine time, the cold weather having necessitated more fire heat than usual where early forcing is practised, and precluded the employment of sufficient moisture. For destroying this insect fumes of sulphur are mostly effectual, flowers of sulphur being formed into a thin cream with skim milk and applied with a brush to the pipes when at a temperature of not less than 160°. If the pipes in the house have to be kept at a high temperature there is danger in applying the mixture to the flow pipes freely, as the fumes will injure the foliage and skin of the Grapes. I wish to draw attention to the effect of the fumes on different kinds of Grapes, for the berries of Hamburgs and those which have not a Muscat flavour are not injuriously affected, and black Muscat Grapes are not affected so much as those with white skins. When stoning is completed strong sulphur fumes cause the berries to assume at first a leaden, and afterwards as the ripening advances a bluish or purplish tinge, especially near the footstalk, giving them the appearance not infrequent in Grizzly Frontignan. How is this?—G. A.

#### ROSES AT REGENT'S PARK.

MESSRS. WM. PAUL & SON of Waltham Cross now have their customary exhibition of Roses in pots at the Royal Botanic Society's Gardens, and rarely have the plants been seen in better health than they are on this occasion. Two hundred and fifty specimens are shown, mostly in 10 or 12-inch pots, with clean, well-developed, vigorous foliage, each plant bearing from eighteen to two dozen blooms, the colours of which are as clear, bright, and fresh as could be desired. Owing, however, to the position the plants occupy in the corridor being rather too much exposed to the sun, and the awning employed to shade them being scarcely heavy enough, the majority of the blooms have become somewhat too fully opened, and in consequence their distinctive characters cannot be seen to the best advantage. On the opposite side of the corridor, which is much more shaded, a number of smaller specimens in 8-inch pots represent some of the chief new varieties, and on these the flowers are excellent in size, form, substance, and colours. In addition to these, twelve boxes of cut blooms are shown in similarly satisfactory condition.

A large number of varieties are represented, including many novelties as well as the older favourites. Among the newer forms two unnamed seedlings are noticeable—one with neat well-formed blooms, something in the way of Duchess of Bedford, but of a darker colour; the other has very broad rounded petals of good substance, and very dark crimson in colour. Both appear to be really fine dark-coloured Roses. Of the other new Hybrid Perpetuals William Warden is noteworthy for its handsome pink blooms, the petals of great size, the flower being generally full and of excellent substance. Souvenir de Madame Robert is another

pretty pink variety; while Crown Prince and Pride of Waltham, with many others, well maintain the credit of the firm. A new Tea named Dr. Berthet, with a beautiful blush-tinted flower suggestive of Souvenir d'un Ami also attracted much attention from the visitors.

The most noteworthy among the older varieties were Baron de Bonstettin, Xavier Olibo, Magna Charta, Dupuy Jamain, Etienne Levet, Camille Bernardin, Paul Neyron, Victor Verdier, and Lælia, of the Hybrid Perpetuals; and among the Teas were some good examples of President and Niphetos, some flowers of the latter having been of extraordinary size. The arrangement of the plants has been carefully performed, and the general effect is highly satisfactory.

#### HINTS ON RAISING PLANTS FROM SEED.

GENERAL directions on this subject are nearly as difficult and perhaps as dangerous as on the kindred subject of watering, no two cases being exactly similar. The difficulty is not diminished at present (April 22nd), when there is a cold, searching, north-east wind blowing, a few hours' exposure to which would greatly injure any tender plant. To make matters worse the temperature is 10° less than the week previous. I have no doubt it is lower, and the effect of the weather more injurious in the north of Ireland, some parts of England, and the whole of Scotland too. Those living in southern valleys sheltered from the northerly blasts enjoy a warmer climate. I am acquainted with a few gardens fully exposed; and when the climatic influences are as at present, the temperature behind the house—northerly, is always 10° less than at front—looking south. Now such considerations and observations are very important for those with limited appliances and limited time when raising plants from seeds, which so many are doing now. What complicates all this is the influence of the sun. While writing there is no sunshine—the day might be one in December; yet in half an hour the sun may come out in full force, raise the temperature of greenhouse or frames to 70°, and with moisture scorch the tender expanding leaves of half-hardy plants and cuttings. There is no remedy for this except precaution. A few days since I sowed some valuable Primula seed in pans; and the remainder of the package, which I considered would have made the seed too thick, I put separate. The seed germinated, and in the pans that were slightly covered with moss, which acted as a shade and retained moisture, the seedlings escaped, while the others while moist were caught by strong sunshine and destroyed. The same thing happened to Godetia Lady Albemarle and Browallia elata, which I put outside when the weather came moist and genial a week since. Buying expensive seeds, going to much trouble preparing composts, sowing, and watching for a suitable temperature—all this may be wrecked at a critical moment if persistent attention is not maintained. If kept in a moist frame with a heat not exceeding 65° except from sun heat, and with moss spread on the surface of the pot or pan or a sheet of whitened glass, little watering will be necessary. Watering from a large rose, and especially with hard water, such fine seeds as Tuberous Begonias, Show Auriculas, &c., would be instant death, besides scattering the soil on all sides. Many are uneasy when they do not see such plants as those named coming up rapidly in a fortnight or so. Many of the hardier florists' flowers, even Carnations, Primulas, Pansies, &c., take months before the whole of this have germinated. Geranium seed I sowed in January are still germinating. [Primrose and Polyanthus seeds, especially if dried or kept long without sowing after gathering, will often remain six months before they germinate.

At present I have a quantity of Primula japonica sown last October just coming up—seven months after sowing, and the seed was taken off the heads of the plants fresh. I should strongly recommend amateurs to gather seeds from any novelties that come under their notice, and sow it as soon as ripe. Very few seeds improve by keeping. There are a few vegetable seeds, and I believe Asters, that a year's keeping will not injure—rather give a stocky and more compact habit of growth; but the reference to sowing as above indicated applies to rare plants, and implies that you have the means of keeping them over the winter if necessary, as the autumn is the general season when this recommendation can be taken into effect. Many good plants will grow and live outside during the severest winters. Take a case of a universal favourite, the Pansy. Away on vacation last year, I noticed in a gentleman's garden in Connaught a very curious Pansy. Fortunately there were many pods of almost ripe seed which the head gardener plucked for me. They were completely ripe in my portmanteau when I returned here in August. I sowed them in a box in the open air, and I believe every seed soon germinated. Without any protection except what some fine hay and the snow

gave, those seedlings lived outside last winter, were transplanted in February to a finely prepared bed, and so far, strange as it may seem, the few flowers that have opened are all different from the parent Pansy; and it is one of the sources of pleasure in raising such seedlings to watch what each fast-expanding bloom may be like. The certainty of variety would of course be greater from a mixed package of seed.—W. J. M., *Clonmel*.

#### BRUGMANSIAS.

THESE plants are not very often seen in our greenhouses and conservatories, yet they are well worth a place in such structures. They have a noble appearance when in leaf, and are highly ornamental when in flower. Brugmansias are free and vigorous in habit, and this in my opinion is what is very frequently wanted in many conservatories, as formally trained plants are often too

numerous. They are well suited either for culture in pots or for being planted out. Some time ago we had them in pots and tubs, but now they are all planted out in the conservatory and are greatly admired. When the plants are in good health the leaves are about a foot in length and half this in width, of a beautiful green colour, and all showing a drooping tendency. The flowers are of true trumpet-shape, quite a foot in length, fragrant, and of various colours. Those of *B. Knightii* are double white; *B. suaveolens*, single white; and *B. sanguinea* is scarlet, orange, and green. All hang down like great Fuchsia buds, and they have a grand appearance. One large plant of *B. suaveolens* has been blooming with us for the past ten weeks, and although the flowers do not remain long fresh in a cut state, they were very effective during the early days of spring.

By a little extra attention they may be had in bloom twice or three times during the year. As soon as they have flowered we



Fig. 84.—RHODORA CANADENSIS.

cut the shoots close down to the old wood and allow the young ones to grow up. These flower in a few months, when they are removed in the same way and others take their place. Being very softwooded they grow rapidly, and if they were not cut down in the manner indicated they would soon become too large. Another way of treating them is to cut half the shoots down at one time, and the others when the young growths have made about half their length. This plan prevents the plants from ever having a bare appearance, and it also secures a greater succession of bloom.

I daresay young plants may possibly be obtained from some nurseries, although we never see them advertised. They may also be raised from seed, and cuttings root freely. Like all quick-growing softwooded plants they require a soil of good loam and cow dung. This is the only compost we use for planting them in, but when sand or charcoal is added after the plants have been well established we do not treat them so liberally, as they are likely to

produce a quantity of wood and leaves, and the flowers are not so abundant. Unless the soil is very poor only clear water should be given when the wood is being made, but as soon as the flower buds are visible liquid manure may be supplied. This renders the flowers larger and more fully developed. When plants are in 10 or 12-inch pots they need not be shifted on or repotted for some years, but whenever young growth is being formed a top-dressing of manure will be beneficial.—PRACTITIONER.

#### RHODORA CANADENSIS.

ONE of the prettiest early-flowering deciduous shrubs we have is that represented in the accompanying woodcut, and when in its best condition it is highly attractive. The flowers are of a fine crimson tint, very suggestive of *Azalea amœna*, and are borne in terminal clusters of four to eight each, appearing in late March or early April before the leaves are developed. A few

specimens in front row of shrubbery border, or in the mixed border, have a charming appearance in spring, as the blooms are produced in great abundance, and prove useful for cutting when the supply from other sources is becoming exhausted.

The plant thrives well in ordinary light garden soil, and succeeds admirably in Messrs. Osborns' Fulham Nursery, whence the specimen was obtained represented in the engraving.

#### PORTRAITS OF NEW AND NOTABLE PLANTS.

In briefly pointing out the chief characteristics of the new or remarkable plants figured in the leading scientific publications, it may be useful to some readers if the known or probable cultural value of such plants be indicated; as many, though of considerable interest to botanists, would be of little use in ordinary gardens, where the object is to obtain the best possible display with the least expense. Some, too, even of the really useful species, are not in commerce, and not readily obtainable, as they are often confined to a few botanic gardens. Indeed, it is surprising, that although nurserymen display such energy in introducing new plants, many in botanical collections that would merit a place in any garden are allowed to remain comparatively unnoticed; yet the majority of such establishments now afford the trade every facility in obtaining by exchange any plants that can be readily propagated. Therefore, in addition to such cultural notes as may seem requisite in referring to "Portraits of Plants," attention will be especially directed to any of these neglected plants which may be occasionally figured.

*CRAWFURDIA LUTEO-VIRIDIS*. (*Bot. Mag.*, t. 6539.)—A climbing ally of the *Gentians*, with opposite, ovate, cordate leaves, which become tinged with reddish purple when mature, and axillary or terminal clusters of green and white tubular flowers. The chief attractions of the plant are the brilliant crimson fruits, which are ellipsoid in form and 1 inch to 1½ inch in length. Seeds were sent to Kew in 1879 by Dr. King of the Calcutta Botanic Gardens, and the plants produced flowered early in the present year in a cool pit. Native of the Sikkim Himalayas. The plant would no doubt thrive in an intermediate house or possibly in a greenhouse, and might advantageously receive the attention of cultivators.

*POLYGONUM SACHALINENSE*. (*Ibid.*, t. 6540.)—This is stated by Sir Joseph Hooker to be "by far the noblest species of *Polygonum* known in cultivation, if not the noblest of the genus, forming as it does clumps 6 to 8 feet high and broad, of innumerable rich red-brown wand-like stems that spread and droop gracefully all round, loaded with magnificent leaves which attain a length of 18 inches and a breadth of 10." It is a native of Japan and the island of Sachalin, and was discovered in Amur Land by Maximovicz. It was cultivated in the Moscow Zoological Gardens in 1869, and is believed to have been grown at Kew twenty years ago, "having been probably introduced by one of the Kew collectors in Japan, Mr. Oldham or Mr. Wilford." It increases very fast by the roots, and flowers in September and October. A fine clump of this *Polygonum* has an imposing appearance in Battersea Park.

*MILLETTIA MEGASPERMA*. (*Ibid.*, t. 6541.)—Closely related to *Wistaria sinensis*, differing chiefly in the pods. "It is a tall woody climber, festooning lofty forest trees in its native country—namely, river banks in tropical and subtropical Australia, where its pendulous paniced racemes of bright purple flowers and glossy evergreen leaves must have a beautiful effect." The leaves are pinnate with five pairs of leaflets, and it bears long racemes of flowers, the standard being pinkish, the wings and keel bright purple. First described by Baron Von Mueller, who introduced it to Kew, and a plant flowered in the temperate house there last year. It is well adapted for growing in similar structures, and is very attractive when flowering.

*CLEMATIS AETHUSÆFOLIA* VAR. *LATIFOLIA*. (*Ibid.*, t. 6542.)—A hardy climber, with pinnately divided leaves and small campanulate white flowers about three-quarters of an inch in length. The plant has long been at Kew, and was received from the St. Petersburg Botanic Garden. It flowers in autumn. Native of Amur Land and North China.

*FOURCROYA CUBENSIS* VAR. *INERMIS*. (*Ibid.*, t. 6543.)—A variety of *Fourcroya* from Mr. Wilson Saunders which flowered at Kew last year. Mr. J. G. Baker considers that it only differs from *F. cubensis* in "its less rigid leaves, and by the total or almost entire suppression of their marginal teeth."

*TRICYRTIS MACROPODA*. (*Ibid.*, t. 6544.)—A pretty herbaceous plant, with stem-clasping leaves and corymbs of yellowish flowers dotted with reddish purple. A native of Japan and China. It resembles *T. hirta* (figured in this Journal page 291, vol. xxxvii.) in habit and the form of the leaves, but the latter are not clothed with hairs in *T. macroпода*, and the flowers are smaller.

*CRINUM FORBESIANUM*. (*Ibid.*, t. 6545.)—"A most curious and interesting species of *Crinum*, remarkable for its very large bulbs, short stout scapes, and very large decumbent leaves, not developed fully till after the flowers have faded." It is an ally of *Crinum Kirkii*, and the flowers resemble *C. ornatum* in the red-striped perianth. It was sent to England in 1824 by Mr. J. Forbes, but appears to have been lost until 1877, when Mr. J. J. Monteno sent

bulbs to Kew from the Lebombo Mountains near the eastern coast of Africa, in the latitude of Delagoa Bay.

*ABRONIA LATIFOLIA*. (*Ibid.*, t. 6546.)—A hardy perennial plant which, like its better-known relative *Abronia umbellata*, is included in the natural order *Nyctagineæ*. It has opposite heart-shaped leaves, and axillary umbels of small yellow tubular flowers, with slender prostrate stems. The plant abounds on the shores of Western North America, where it was discovered by Mr. Archibald Menzies in the expedition of Captain Vancouver. It succeeds well in light soil, and frequently flowers at Kew in the late summer months.

*NERINE FILIFOLIA*. (*Ibid.*, t. 6547.)—A new *Nerine* received at Kew in 1880 from Mr. C. Ayres, Cape Town. It is distinguished by the filiform character of its foliage, and has small flowers with narrow spreading rosy crimson petals, the bright colour of which renders the plant very attractive. It is well suited for culture in pots. In describing the plant Mr. J. G. Baker expresses an opinion that *Nerine* cannot be well separated as a genus from *Ammocharis* and *Lycoris*.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Colonel R. Trevor Clarke in the chair, the following candidates were duly elected Fellows—viz., E. H. Bousfield, Henry Chapman, John Omer Cooper, Percy Cooper, W. H. Counsell, Colonel Dunsterville, Arthur J. Edwards, Mrs. Ellis, Mrs. Tyler, Miss Amy C. Galton, Frederick S. Isaac, Thomas Jackson, W. W. Lander, Miss Leyland, Edmund Loder, Lady Agnes Move Nisbett, George Prince, Richard Sisley, Mrs. J. S. Grant Smith, Rev. F. A. Stewart-Savile, Vincent Biscoe Tritton, C. H. B. Whitworth.

— DURING the past few days rather boisterous and dry easterly winds have prevailed, which are very inimical to the SETTING OF FRUIT BLOSSOM. A very large grower of fruit trees remarked to us the other day that these rough and dry winds often do as much injury as frost, as the expanding flowers are forced open prematurely; the petals are thin in texture and blown off before their time, leaving barrenness behind them. There is much truth in that remark; and although fruit blossom is late and has generally escaped injury by frost in the metropolitan district, yet if more genial weather does not speedily occur, with occasional showers, we shall not be surprised if many trees that are so profusely covered with blossoms produce comparatively light crops of fruit.

— IN order that gardeners and others in different parts of the country may note the state of vegetation as compared with that in the neighbourhood of London, it may be stated that LILACS COMMENCED FLOWERING generally in the parks and suburban gardens on the 7th inst. The trees and bushes are now very beautiful, the majority of those of mature age being laden with flowers.

— WE have to record with much regret the death of MR. ROBERT BENBOW—who for the last six years was manager of the seed department at Mr. B. S. Williams's Victoria and Paradise Nurseries, Upper Holloway, N.—which occurred on Thursday night the 5th inst. Mr. Benbow had been for some time in a weak state of health, which was much aggravated by the severe winter and chilly east winds which we have lately experienced. To a thorough knowledge of his business he combined an amiable disposition and a gentleness of manner which won him the esteem and respect of all who came in contact with him. The deceased had only attained the age of forty-one years, and leaves a widow and three children to mourn his untimely end.

— WE observe that BEDDING-OUT has commenced in the



London parks, not only many of the comparatively hardy edging plants having been put out, but also several Pelargoniums. We note, however, they look the reverse of comfortable, both the soil and air being very dry, and the wind brisk and cold. Rain is much needed, and until it comes the placing-out of tender plants cannot be recommended as a safe course to pursue. Those who can adopt a waiting policy in a matter of this kind will probably be gainers in the end, as to nothing does the old adage of "more haste worse speed" apply than to the work of placing tender plants in flower beds, thousands of which will be so-treated during the present month.

— A GARDENER writes as follows upon PLANTING CAULIFLOWERS:—"A useful plan I have adopted in planting Cauliflowers and all the Brassicas is to draw a deep drill or trench, and plant them in that, as it affords great protection to them, and they receive more benefit from the rains. The soil may be drawn round the plants, and the quarters look much neater; besides, the plants succeed better than when planted on the level and the old-fashioned system of earthing them up like Potatoes is adopted."

— THE extent to which flowers are employed has been recently strikingly exemplified by two occurrences—one sad, the other jubilant. For placing on the bier of a late distinguished statesman, the Earl of Beaconsfield, as many wreaths as would fill a waggon were stated to have been sent to Hughenden; and the correspondent of a daily paper has stated that the marriage offerings of the public of Brussels to Princess Stephanie, daughter of the King of the Belgians, took the graceful form of bouquets, of which so many were offered to the Princess on the occasion of her departure from that city that no less than four waggons were required to remove them to the Palace; and we are also informed that the flower merchants of Vienna could not possibly execute half the orders they received for the decoration of that city during the wedding festivities.

— THE value of ZONAL PELARGONIUMS AS CUT FLOWERS is admirably shown by Mr. James McIntosh, whose bulb beds were recently alluded to in this Journal. Ever since last autumn a large round table in his sitting-room has contained about six dozen small Alexandra glasses, each containing one truss of flowers, the stalks inserted through bits of paper containing the names, which, resting just inside the glass tube, can be read through it. These variedly coloured trusses arranged in concentric circles produce a beautiful effect, and an excellent estimate can be formed of the relative merits of the varieties. Among the most striking scarlets were Ferdinand de Lesseps, Remus, and Corsair; Circulator, paler in colour, being highly attractive. Brutus was perhaps the best crimson; Sybil Holden and Lady Emily fine among the pinks; Miss Hamilton a splendid delicate peach colour; Fairest of the Fair, Miss Gladstone, and Evening Star excellent oculated varieties, blush with salmon centre; and White Clipper, a fine if old pure white. These are all worth growing, but it might be that others equal to them would be seen after a rearrangement, for the number of varieties grown is very large.

— A CORRESPONDENT writing to us on the beauty of TULIP BEDS IN LONDON, after referring approvingly to those in the parks and Temple Gardens, states the finest beds he has seen were those of Captain Patton at Langford Place, N.W., which, he says, "a week ago were gorgeous, the blooms of Keyzers Kroon being 18 inches in circumference, white Pottebakker being nearly equally fine; Pourpre Kroon, with variegated foliage, extremely rich; and the doubles La Candeur, Rex Rubrorum, and Tournesol of great excellence. The beds were first planted all over with Crocuses, and just as these faded the Tulips commenced expanding, thus rendering the garden gay for many weeks. The latter were planted about 6 inches apart among the Crocuses, the

foliage of which does not in any way mar the effect of the Tulips. A thick layer of manure was placed a few inches below the bulbs, and to this the very large and fine flowers is attributed."

— THE third portion of Mr. Day's Orchids was sold on the 4th and 5th inst. by Mr. J. C. Stevens, the following being some of the principal prices realised. *Cypripedium Stonei* var. *platytænium*, one strong growth with seven leaves and a young shoot with four leaves, 120 guineas. The only other specimen of this fine variety, it will be remembered, has been previously sold for 140 guineas, Sir Trevor Lawrence being the purchaser; and it was recently stated in the "Gardener" that this price was £42 higher than has been ever obtained for any single Orchid. *Cattleya labiata*, a fine plant of an autumn-flowering variety, with a seed-pod said to have been fertilised with pollen from *Cattleya exoniensis*, 40 guineas. *Masdevallia chimæra*, the true species imported by Mr. Sander in April, 1880, 15 guineas. *M. bella*, very good specimen of excellent variety, 16 guineas. *M. radiosa*, rare, 12 guineas. *Saccolabium guttatum* var. *Holfordianum*, 21 guineas. *Vanda insignis*, the true species of Veitch's importation, 34 guineas. *Aerides Fieldingi*, handsome plant with twenty-six leaves, 22 guineas. *Phalænopsis Wightiana*, rare, 16 guineas. *Saccolabium Turneri*, strong plant, 24 guineas. *Cypripedium Spicerianum*, fine plant, three growths, 42 guineas. *Oncidium ornithorhynchum album*, 36 guineas. *Lælia elegans* var. *Wolstenholmeæ*, 28 guineas; and *Angræcum Ellisi*, a strong plant, 15 guineas. Several *Nepenthes* were also sold, one fine specimen of *N. sanguinea* realising 21 guineas. The total amount obtained for the 659 lots was £1888—higher by £40 than was yielded by either of the preceding sales. The fourth portion will be sold on May the 23rd and 24th.

— PARTICULARS of the following GARDENING APPOINTMENTS have been forwarded to us:—Mr. G. Radford, late gardener to Col. Lambton, Streatham Hill, succeeds Mr. Millard as gardener to Mrs. Gebhardt, Highcroft, Husbands Bosworth, Rugby; Mr. W. Millard having been appointed gardener to Wm. Soper, Esq., Caterham Valley. Mr. Henry King has succeeded Mr. Whorten as gardener to Mrs. Carter, Ospringe House, Faversham, Kent. Mr. F. Southam, recently gardener to the Rev. T. Jeffcott, Farthinghoe Rectory, Northamptonshire, now holds a similar position in the service of J. C. Harter, Esq., The Cedars, Leamington. Mr. W. Manning, late gardener to the Rev. Sir E. G. Moon, Bart., Fetcham Rectory, Leatherhead, succeeds Mr. C. Millard, as gardener to Geo. Taylor, Esq., Hazle Hall, near Epsom; and Mr. J. Paul, recently in the service of C. Weldon, Esq., Morden Hill, Lewisham, has been appointed gardener to George Beer, Esq., Elmwood, Bickley.

— SWEET NANCY.—A correspondent, "J. T.," desires to know the botanical name of a plant that is popularly known in some districts by the above name, and also where he can obtain plants.

#### ROYAL HORTICULTURAL SOCIETY.

MAY 10TH.

EXHIBITS on Tuesday last were not very numerous, though both the Council-room and the conservatory contained some groups of interest and several promising new plants.

FRUIT COMMITTEE.—Harry Veitch, Esq., in the chair. Messrs. C. Lee & Son, Hammersmith, sent three plants of an alpine Strawberry named *Duru*, with long conical bright scarlet fruits, which the Committee desired to see again. Mr. Woodbridge, The Gardens, Syon House, exhibited a dish of Suttons' Scarlet Globe Radish, neat in form and bright in colour, but considered to closely resemble a variety certificated at Chiswick last year as Round Rose Hatif. Mr. A. Mann, St. Vincent's, Grantham, sent a fruit of a new Melon named Sir Garnet Wolseley, of medium size, about 5 inches in diameter, with yellow flesh and well netted, but deficient in flavour. It was stated by the exhibitor to be three weeks earlier than Read's Hybrid, having been in use since the 18th of April. Mr. Mann also sent fruits of Rollisson's Telegraph Cucumber and one named *Excelsior*,

the latter long, of good shape, and bearing moderate bloom. Mr. Buchanan, gardener to Dr. Siemens, Sherwood, Tunbridge Wells, exhibited a fruit of Wm. Tillery Melon grown under the influence of the electric light. It was firm and of good flavour, a cultural commendation being awarded for it. Some Wheat was also shown which had been sown on December the 7th and subsequently grown in the electric light, and it was then over 2 feet high. A vote of thanks was accorded to Mr. Z. Stevens of The Gardens, Trentham, for a bunch of Black Hamburgh Grapes. A collection of Apple flowers of several varieties was sent from the Royal Horticultural Society's Gardens, Chiswick; and Mr. R. T. Veitch, Exeter, sent fine examples of his late white Broccoli Exeter Market.

**FLORAL COMMITTEE.**—W. B. Kellock, Esq., in the chair. Messrs. Veitch & Son exhibited a group of new plants, of which several were certificated and are described below; but in addition to these the following were noteworthy. A *Primula* from Tchang, said to be hardy, with loose umbels of pale purplish white flowers something like the light-coloured varieties of *P. cortusoides*. The leaves were bright green, roundish or heart-shaped, with stalks 3 or 4 inches long. The Committee desired to see it again from out of doors. *Indigofera decora alba* had racemes of white Pea-shaped flowers and light green pinnate leaves—a pretty variety of a well-known plant. *Chionographis japonica*, which was exhibited and certificated last year, was again shown in good condition with two spikes of its curious flowers, the linear irregular petals of which impart a very distinct appearance to the plant. A basket of an excellent dark red Japanese Maple named *Acer polymorphum latifolium atropurpureum* was also contributed, with specimens of *Alpinia albo-vittata variegata* very freely streaked with white. Sir Trevor Lawrence, Bart., sent a plant of *Cypripedium Wallisi* and flowers of *C. caudatum* for comparison, both having very long narrow petals, greenish flowers, and a large white blotch inside the lip; but in *C. caudatum* the lip is tinged with brown, while in the former species it is light green. A plant was also staged as *Cattleya Reineckiana*, but the accuracy of the name was questioned by some members of the Committee. The flowers were fine, with broad white petals and sepals, a large lip with a crisped white margin, crimson centre, and yellow base. A vote of thanks was accorded to Mr. W. Fyfe, gardener to W. F. Dick, Esq., Thames Ditton House, Surrey, for a stand of excellent *Maréchal Niel* Roses.

Messrs. Laing & Co., Forest Hill, contributed a group of *Caladiums* and *Tuberous Begonias*. Among the former *Alfred Bleu*, *Mithridates*, and *Princess Teck* were especially remarkable for the size and bright colour of the leaves, but the Committee wished to see the varieties again, as they were scarcely developed enough to judge of their respective merits. Three beautiful *Begonias* were exhibited, all scarlet—one named *Scarlet Gem*; another, Mr. Alfred Brassey, with broad petals of a very bright tint and neat habit; and the third *Begonia Davisii flore-pleno superba*, which was deservedly certificated and is referred to elsewhere. A *Colcus* named *Mrs. Baxter* with crimson leaves margined with green was shown by the same firm. Colonel Trevor Clarke, Welton Place, Daventry, showed a hybrid *Elisena* bearing two white *Pancratium*-like flowers on a scape 2½ feet high. It was referred to the Scientific Committee. Mr. Croucher, gardener to J. T. Peacock, Esq., Sudbury House, Hammersmith, sent a plant of *Masdevallia Harryana*, a very fine variety, the flowers about 2 inches in diameter and rich in colour. Messrs. James Carter & Co., High Holborn, sent a pretty double *Primrose*, and plants of what they termed “a new hybrid *Marguerite Chrysanthemum Prince Rudolph's Bride*,” with white flowers, very like *C. frutescens*, but apparently rather more compact in habit and bearing light green pinnatifid foliage. Mr. R. Dean exhibited specimens of his new dwarf Red Wallflower, very dark in colour and excellent in habit. The strain was commended. A dwarf double yellow variety with small bright-coloured but full flowers was also noticeable. Mr. G. Bethell, Sudbourn Hall, Wickham Market, staged plants of a white variegated *Spiderwort* named *Tradescantia argentea*, and some seedling *Coleuses*; one, *Mrs. Baines*, neat, mottled with crimson green and yellow, and *Mrs. Bethell* with a rosy centre and green and yellow margin. Mr. Harrison Weir, Weirleigh, Brenchley, Kent, sent pretty dark-ground gold-laced *Polyanthuses*, named respectively *Heart's Delight*, *Triumph*, and *Goldfinch*. Mr. James Kelman, Chingford, Essex, exhibited plants of a dwarf Musk with yellow crimson-spotted flowers. Mr. Edward Bland, Cranbourn Court, Winkfield, Berks, staged a plant of a seedling *Anthurium Schertzerianum* with brightly coloured spathes 4 or 5 inches long. Mr. J. Copley Far, Headingley near Leeds, was accorded a vote of thanks for a *Tropæolum*, said to be a seedling from Ball of Fire, which it greatly resembled, but the flowers were perhaps a little larger. Messrs. Rivers and Son of Sawbridgeworth contributed trusses of two seedling *Zonal Pelargoniums*, both with shades of pink with full double flowers; and the Royal Horticultural Society exhibited specimens of the pretty purplish blue *Tropæolum azureum*, and the elegant *Onychium auratum* from the gardens at Chiswick.

In the conservatory the principal group was from Mr. B. S. Williams, Upper Holloway, which comprised an abundance of choice Orchids and other plants, and well merited the silver Flora medal awarded for it. Several *Dendrobes* were especially notable. *D. Griffithianum* having nine fine trusses of bright yellow flowers; *D. fimbriatum oculatum*, also fine; *D. Dalhousianum* with pendulous racemes of large flowers; *D. rhodopterygium*, pale mauve or pinkish; and the well-known *D. Pierardi* were all admirably represented.

*Aspasia lunata* was bearing several flowers; the imposing *Oncidium Marshalli* and the distinct *Epidendrum paniculatum*, with several fine *Masdevallias*, as other beautiful plants, rendered the group highly attractive.

Messrs. Osborn & Son, Fulham, were awarded a silver Banksian medal for a pretty group of stove, greenhouse, and hardy plants. In the centre was a large basket of *Gentiana acaulis* with abundance of brilliant blue flowers, forming by far the most important feature in the collection. Mr. Aldous, South Kensington, staged a miscellaneous collection of decorative plants; and Messrs. Barr & Sugden, Covent Garden, were accorded a silver Banksian medal for their extensive and beautiful collection of *Narcissus* flowers. Mr. Turner, Slough, sent baskets of the richly coloured *Tricolor Pelargonium* Mr. Henry Cox, and a fine double white *Azalea* named *Madeleine*. The latter was extremely fine, some of the flowers exceeding 4 inches in diameter, very full, of good substance, and pure white. Several tastefully arranged groups were also contributed from the Society's gardens, the *Azaleas* and varieties of *Primula cortusoides* being particularly fine.

The following first-class certificates were awarded:—

*Aralia Chabrieri* (Veitch).—A very elegant plant with linear leaves 6 to 8 inches long, dark green, the midrib being dark red. They are arranged in a pinnate manner on the slender branches; and the plant, being compact in habit, has a very neat and pleasing appearance.

*Gloxinia Radiance* (Veitch).—An erect-flowered variety, the flowers of medium size, very smooth, and symmetrical in form; the corolla rich crimson, the tint extending nearly to the base of the tube inside, the outer part very pale pink. It was very free and compact in habit, the leaves 8 inches long by 5 broad, bright green.

*Primrose Cloth of Gold* (Messrs. James Carter & Co.).—An excellent double *Primrose* of dwarf habit, and bearing numerous large pale yellow flowers. The plants shown were from the open ground, and proved how well adapted the plant is for growing as an edging to borders.

*Begonia Davisii flore-pleno superba* (Laing).—Probably the finest double scarlet *Tuberous Begonia* yet in commerce. The flowers exceed 3 inches in diameter, very full of petals, and of a most intense scarlet tint. It is dwarf in habit, and has the small dark green leaves characterising the species.

*Ribes pumilum aureum* (Osborn).—A dwarf *Ribes* only a few inches high, and well suited for pegging down as an edging to beds. The leaves are very small, and possess a well-marked yellow tint.

## ORCHIDS AT KEW.

IN a collection of Orchids similar to that at Kew we always find a few varieties either of botanical interest or horticultural value. The Kew collection, as a matter of course, is composed of almost all kinds, some being of striking beauty, whilst others when in flower are small and inconspicuous.

Amongst the most showy forms that are in flower, the first to arrest the attention of the visitor are some very fine varieties of *Vanda suavis*. The plants are healthy and clothed to the pot rims with thick dark green foliage. In the same house may now be seen in grand condition several remarkably fine specimens of *Epidendrum bicornutum*. These plants are worth going a long way to see, for it is seldom we have an opportunity of seeing this Orchid in flower. There are several good *Dendrobiums* in flower. The first to be mentioned is *D. Dalhousianum*: this species, being so well known, needs little said in its favour. *D. fimbriatum* var. *oculatum* is a good old kind, and will always be appreciated. The flowers in the variety under notice are of great size and substance. *D. barbatulum* is another species now in flower. This is apparently rather scarce. It is supposed by many to be difficult to grow, but it seems to be flourishing and flowering freely at Kew in a shallow pan suspended from the roof. The flowers are pure white and thickly set on a drooping raceme, and would be admirably adapted for cutting. *D. lituiflorum* is flowering in a basket. I do not remember seeing a finer form. *D. mcsachlorum* is by no means a popular plant in Orchid collections, but anyone seeing the plant of the above-named species in flower at Kew could not fail to appreciate it. It is much in the way of *D. Pierardi* in shape, colour, and size of the pseudo-bulbs, but the flowers are much whiter, the sepals and petals are pure white tipped with purple, with a most delicious Violet perfume.

There are several *Oncidiums* in flower. The first on the list in this genus is *O. Krameri*; a very quaintly formed flower. *O. pumilum* is flowering on a piece of cork suspended from the roof, and evidently enjoys the treatment it receives. It apparently belongs to the *luridum* section, for the leaves are very similar but much smaller. There are several racemes; the flowers are hooded, and packed almost as thickly on the raceme as they can stick. *Sobralia macrantha* is doing well and producing numbers of its *Cattleya*-like flowers; the individual flowers last but a short time in perfection, but as the old flowers decay they are succeeded by others which spring from the top

of the matured pseudo-bulbs. *Thunias* are grown well at Kew, *T. alba* being especially noteworthy, and is now making a grand display in the cool house. The bulbs or stems are short and almost as thick as one's thumb; apparently the short stems are the best for flowering. I noticed on one plant where the stems were short and stout they were producing fine racemes of flowers; whilst on another plant the stems were much longer and not nearly so thick, there were no flowers at all. *Pleione Hookeriana* is in excellent condition. This is indeed a little gem; the flowers are a fair size, the sepals and petals being pure white, the scooped-shaped labellum being also white with a dirty brown. There is one variety of *Odontoglossum Pescatorei* which I greatly admired; the flowers are very large and pure white. *O. Pescatorei* usually has some violet markings on the

column and at the base of the labellum, but in this case it is almost or entirely absent. There are several *Cypripediums* flowering freely, and one that is named *C. barbatum* var. *giganteum* is of special merit. The flowers are large, as the name implies; the dorsal sepal is of great breadth and substance, the colouring of the veins being most intense. The above are only a few of the Orchids that are now flowering at Kew.—VISITOR.

#### PRETTY SPRING FLOWERS.

AMONGST spring-flowering plants there are some which have what I may term fugitive blooms—beautiful for a few days and then lost to view and enjoyment for a year. As a type of this class I name *Sanguinaria canadensis*. Others are more durable,



Fig. 85.—CROTON HAWKERI.

and remain in bloom for some weeks. Probably one of the most beautiful when examined are the *Epimediums*, blooms of which I enclose. Here on a limestone foundation they grow freely anywhere. I have them on a barren spot at the foot of an Oak tree, on a rockery, and on an open damp border. In the last they spread most freely; the wax-like flowers are the admiration of all who examine them.

Next them in beauty and length of flowering time comes *Orobis verna* and its varieties. Following in time but more brilliant in colour are the *Gentians*—perfect gems where they like their home, and strange to say they prefer a garden walk of limestone chippings to the rich bed which was provided for them in the adjacent border. Scarcely less bright in colour, but smaller in bloom, of a bright blue, is *Omphalodes verna*, somewhat like the *Forget-me-not* but brighter in colour. There is also a most beautiful flower with a leaf like an *Epimedium*, but with a white wax-like flower

with spurs tipped with purple. I enclose a bloom, which please name.—G. O. S.

[The flower was much crushed and withered; it is probably *Epimedium Perralderianum*.]

#### CROTON HAWKERI.

CROTONS have increased rapidly in numbers of late, many having been imported, some originated by sports, and others the result of cross-fertilisation. A rather close similarity is apparent in several varieties, hence the remark that is not infrequently heard, "there are too many Crotons." Several of the newer forms are, however, highly distinct and decidedly beautiful. The Croton now figured is quite dissimilar from all others that we have seen, and well-grown plants possess a delicacy and chasteness that commands approval. The habit of the plant is very



dwarf and dense, and small plants in 4 or 5-inch pots are charming for table decoration, the colours being such as to show with great advantage under artificial light. The central portion of the leaf is of the palest possible amber, clear and transparent, occasionally approaching white, the margins and tips being deep green. For several decorative purposes *Croton Hawkeri* is a plant of considerable promise, and is worthy of the necessary cultural care to produce it in its best condition. The Floral Committee of the Royal Horticultural Society have placed the stamp of their authority as to the merits of this plant by awarding it a first-class certificate when it was exhibited by Messrs. Veitch a few months since.

#### THE LATE AURICULA SHOW.

I WAS hindered from being present at the late Show at South Kensington owing to parish matters detaining me at home; and as I have not been in the way of seeing any Auricula growers since, the observations I now make are entirely derived from what I have seen in the Journal and other papers; and as I am now unhappily only an outsider I hope it will not be supposed that my remarks are dictated by any "envy, malice, or uncharitableness." In the first place, then, I would ask, Does or does not this, the fourth Show of the Southern Section as it is euphemistically called, of the National Auricula Society, bear out the assertion which I made some years ago, that the cultivation of florists' flowers is at a discount in the south? and have all the very laudable exertions of those who set out to prove that I was wrong been able to bring forward a large accession of exhibitors from the metropolis and from the south of England generally? Well, let us see. There were, as far as I can gather, nine exhibitors—(I do not include Alpines, or Fancy Auriculas, or Polyanthus, or the class for fifty, in which Alpines were allowed to be exhibited)—and of these just one, Mr. Douglas, hailed from the south. Of the others, Mr. Horner and Mr. Simonite were from Yorkshire, Mr. Gorton and Mr. Barlow from Lancashire, Mr. Penson from Shropshire, Mr. Llewelyn from Wales, Mr. Bolton from Cheshire, and Mr. Hay. Amongst these were divided the fifty-one prizes offered, of which Mr. Douglas secured twenty-two, Mr. Horner six, Mr. Penson ten, &c. Now I fail to see in this any proof of the increased interest in the Auricula in the southern portion of the kingdom. People may admire it, may go into raptures over its beauty, may buy plants; but as to the more serious business of exhibiting, I think the publication of these lists fully bears me out in the assertion that in and around the metropolis the zeal there was in the growth of florists' flowers has vanished.

Then I think it evidences how very much the conditions of Auricula-growing are altered. The season was said to be backward, and in fact we know it was; and yet flowers from the very north of England carried off many of the chief honours. They must, then, have been subjected to a considerable amount of heat to bring them forward, and as a consequence, which I see noted in some of the papers, many of the flower stems were drawn, and required what an Auricula ought never to require—a stick to support it.

In looking at the names of those varieties which obtained the prizes a few things are noteworthy. I see in one of the second prizes that Colonel Champneys was included. As a variety that increases rapidly, and from its vigour of constitution as a decorative plant, I have nothing to say against it, but as a Show Auricula it has not anything to commend it. It is utterly despised by the florists of Lancashire. It has a watery eye, an edge that is neither grey nor white, a body colour that runs largely into the edge, and a pip which is cup-shaped instead of flat. Then we see that while the more modern flowers, such as George Lightbody, Lancashire Hero, Alex. Meiklejohn, take very honourable places, they do not quite jostle out the older sorts. Thus in the class of selfs, to which we have a comparatively large number added of late, yet that fine old flower Blackbird took first, third, and fifth prizes, while in whites Sunley Beauty took the first and second prizes, while in the Northern Show such old flowers as Kenyon's Ringleader takes a first place. Now I think this is encouraging to those who cannot afford to pay a guinea a piece for new sorts, as they need not think that because they have not obtained these that they cannot hope to win.

I do not see anywhere any statement as to who the Judges were.—D., Deal.

#### THE UTILITY OF BIRDS IN GARDENS.

BIRDS are so intimately connected with the garden and gardeners that I think they are, as a rule, worthy of being described as beneficial friends. Yet there are many who think the reverse, and some birds are considered useless without the slightest

acknowledgment of the good they do, for I am fully convinced they more than repay us in the end for the mischief they commit at certain times.

The town garden is most likely to suffer from their attacks owing to the scarcity of food. During the recent dry weather I have noticed the sparrows eating the Primroses, chaffinches doing the same with young Turnips, Lettuces, &c. Blackbirds and thrushes, too, have completely stripped the Ivy of its berries, the ground being so dry that worms have retreated out of their reach.

The most familiar and the most persecuted bird is the house sparrow (*Passer domestica*). It is needless to point out its faults, which are well known, but it is my object to show that it does good as well as injury. It has frequently been said, and no doubt is yet believed, that sparrows are not caterpillar eaters, but I have found they are, and they feed their young with such food, which also forms a large portion of their own diet. I have often seen the sparrow venture into the plant houses where Roses, &c., were infested with green fly, often revisiting the house.

The chaffinch (*Fringilla cœlebs*) also feeds on insects to a large extent in summer time, the young being principally fed with caterpillars and aphides; the latter especially I have frequently seen them scrape off the young shoots of Plum trees. They are amongst the most useful birds as ground insect eaters.

Of the Tit family there are four species more useful than injurious—viz., the great tit (*Parus major*), the blue tit (*Parus cæruleus*), the cole tit (*Parus ater*), and the long-tailed tit (*Parus caudatus*). The first two mentioned are addicted to do injury occasionally, and therefore are out of favour with most gardeners. Both of these tits feed their young principally on caterpillars; in fact, it is only on rare occasions they intrude on the gardener's property to do any damage. The cole tit and long-tailed tit are both insectivorous; the first is a great destroyer of caterpillars, feeding the young entirely on them. I have more than once known them nest in a garden wall, and from watching their proceedings I ascertained they were valuable friends. The long-tailed tit is certainly a great destroyer of insects, but is of more benefit to the woodman than the gardener. Yet I have an instance of their doing good on one occasion. In the autumn of 1878 every day a number of the long-tailed tits visited a plantation of Black Currant bushes which were covered with brown fly, which the tits did not cease to visit until all the insects were destroyed.

Among the migratory birds there are many insect eaters. Two of them are much alike in their habits and nature—the blackcap warbler (*Sylvia atricapilla*), and the garden warbler (*Sylvia hortensis*), both of which are guilty of eating Raspberries, but I believe the cause of their doing so is to find the tiny grub that is well known to exist in the fruit; but the havoc the two warblers commit in devouring caterpillars during incubation is enough and more to repay for the spoiling of the Raspberries.

The chiffchaff (*Phyllopneuste hippolais*), is one of the earliest of migratory birds, and the latest to depart. Although the last to mention, it is the most useful of all birds connected with the garden. In the latter part of summer I have seen a dozen in one large Apple tree continually on the search after insects. It appears to me but little known among gardeners, but deserves every protection. There are many other birds of great use to a garden; but sufficient has been mentioned to show that we are indebted more to birds than many persons are aware of, therefore we should protect, not destroy them.—A GARDENER.

#### EXTENSION-TRAINED PEACH TREES—LOW TEMPERATURES FOR VINES.

PERHAPS I should say not a word on this subject, for what the phrase exactly means I do not know. I am not possessed of Mr. Simpson's book, but I think the system, as I understand it from what the critics say, is nearly one hundred years old. To prove this perhaps you will allow me to quote a very old gardener, famed in his own time, and quoted and copied by many since. I refer to Mr. Nicol, who practised in Fifeshire about the end of last century. Speaking of Peach trees in the open air he says, "These trees ought to be trained in the fan manner. It is not practicable to train them to any considerable extent horizontally. . . . The shoots of these often require to be shortened. This is to be understood of such as are hurt by frost (not being fully ripened to their extremities), and more particularly of those from which it is wished to produce a supply of other shoots, either to fill a vacancy or for the extension of the tree." He then goes on to state reasons why shoots should be shortened, and how much they should be under different circumstances, chiefly because of unripened and damaged wood. "Unless for these reasons the middle-sized, hard, and well-ripened shoots which abound in fruit

buds and have a wood bud at their extremity should never be shortened." He also advises disbudding as it is generally understood and practised.

Speaking of Peaches under glass he says, "It is a common practice to shorten every shoot less or more. This may be proper for Peaches growing in the open air, as . . . when the extremities are injured by frost; but it can only be proper in the Peach house to cause wood to push to fill vacancies, or to keep the bottom part of the trellis filled with young wood."—(*Garden Directory*, p. 75.) I cannot give the date of this publication, nor the name of the publisher, as some leaves are wanting; but the following occurs in "The Scots Forcing Gardener," first published in 1797, and which ran through several editions:—"Observe this practice (shortening the shoots) till the trees have filled their places, and afterwards shorten none, unless to fill any casual vacancy." He also recommends planting in October. Peaches he recommends to be planted at 15 feet apart, on open walls 15 feet high, and wider under glass. This seems to me the extension principle with such modifications as must be practised. The materials for, and the manner of making the borders, are precisely what every successful gardener adopts now. Altogether I cannot see that this has been any improvement on old Nicol's system, and we think if he had his due many of our "dons" would own that they had learnt their lessons at Nicol's feet. Certainly no practitioner has advanced a step since his day and nothing new except Rivers' dwarfing system has been submitted. There are only two systems worth mentioning practised at the present day. Wherever roomy houses are erected Nicol's system, with very little modification, is the system practised; with small structures Rivers' system is, or should be, adopted. No one has made any improvement on these systems, for they suit the trees, and until their (the trees) nature alters, altered systems will ever remain what they are—pet notions of the few.

I do not think Mr. Simpson has had justice done him in the matter of low night temperatures for Vines. Nothing in modern times has done so much to produce improved health in Vines and better quality in Grapes, the lowering of night temperatures consequent on his teaching. There may be nothing new under the sun, but the high night temperatures of a few years ago are a thing of the past, because those temperatures were destructive. I do not mean to say that nobody practises the old method, but I know that most of our best growers have abandoned the practice.

I think gardeners are in many instances jealous of each other, and occasionally perverse in consequence. I could name one not unknown gardener who, previous to Mr. Simpson's published strictures on high night temperatures, kept up the temperature of his vineries as much above 70° at night as possible, and who quarrelled with many a good journeyman in cold weather when in the morning the temperature was down to 65°, and who at a dinner in connection with a flower show (just after the discussion on Mr. Simpson's practice) made a speech in which he maintained that he had always kept his vineries at anything between 40° and 55° at night, although that very spring he had parted with his foreman because the latter could not keep up a higher temperature than 65°, even although the man had not been in bed all night, and although the water in the pipes was at boiling point, and a higher temperature an impossibility. Latterly he adopted much lower temperature, I believe because of what Mr. Simpson published, and yet I have heard that man say that while he adopted a high night temperature and abandoned "Simpson's" low one he never had succeeded, whereas the exactly opposite was the case. I do not mean to insinuate that such conduct is common even among gardeners, but occasionally the public are misled by such men, and gardeners sometimes grudge their fellow gardeners any fame they may honestly win, and I think the one who reviewed Mr. Simpson's book showed too much of that spirit.—SINGLE-HANDED.

[Our correspondent is in error respecting the reviewer of the book in question, who did not refer to low temperatures for Vines, nor said so much against Mr. Simpson being the originator of the extension system of training Peach trees as is contained in the above article. Mr. Simpson formed a more just estimate when he described the review as "fair and impartial."—ED.]

**AZALEA INDICA MADELEINE.**—One of the finest double white Azaleas I have yet seen was that shown by Mr. C. Turner at the Royal Horticultural Society's meeting on Tuesday last. The flowers are of great size and substance, very full of petals, and pure white, except for a very slight greenish tint at the base, which is not readily noticeable. The habit also appears very compact, and the variety is altogether a very promising one. It is, I understand, one of Mr. Turner's own raising, and I was also

informed that the plants exhibited at South Kensington last Tuesday were subsequently sold to Mr. B. S. Williams of Upper Holloway. Testimony of the excellence of this variety is afforded by the fact that it was certificated in 1879 by the Royal Horticultural Society.—R.



#### HARDY FRUIT GARDEN.

APRICOT trees have now sufficient foliage to protect the fruit, which is only moderately abundant, and the coverings may be removed, except in low situations; but in such cases it is well to uncover the trees on fine days so as to harden the foliage, which might otherwise be injured by sudden exposure to bright sunshine. Thinning the fruit must also have early attention, removing the smallest and those not well placed. The trees will need attention in removing any foreright and other shoots, it being better to rub off gross shoots than allow them to advance and afterwards seek to restrain their vigour by stopping. Shoots required to form spurs should be pinched at the third leaf, and those for extension must have timely attention in tying or nailing in when sufficiently advanced. Keep a sharp look-out for caterpillars. Peach and Nectarine trees are setting the fruit fairly well and are growing freely. The trees are clean where efficient protection has been provided, which should still be continued on cold nights, and where permanent coverings are employed advantage should be taken of fine days to uncover the trees. Disbudding will also soon require attention, commencing with the more forward growths, and to do so gradually so as not to check the action of the sap, as would result from disbudding the whole of the tree at once after the growth is somewhat advanced. Some care and judgment is necessary to supply the trees with young shoots for next season, bearing in mind that the Peach and Nectarine produce fruit on the growth of the previous season; consequently the bearing wood of this season must be replaced by young growth for the next, retaining a shoot at the base of the bearing shoot, and another at its extremity. The growth above the fruit should be stopped when a few inches long unless required for extension. Shoots must also be retained upon trees extending at about 15 inches apart, and those for forming the branches should be trained at similar distances. If aphides appear apply an insecticide, tobacco juice diluted with six times the quantity of water being efficacious, and should be employed as early in the afternoon as to allow the foliage to become dry before night, especially if there is a prospect of frost. If mildew appear apply flowers of sulphur to the parts affected. Keep a strict look-out for the Gooseberry caterpillar, and upon its first appearance dust the bushes with fresh hellebore powder. Mulch plantations of Strawberries with littery manure, to allow time for its being washed by rains so as to form a clean bed for the fruit. Chopped straw forms one of the best materials for mulching Strawberries, and is disliked by slugs.

#### FRUIT HOUSES.

**Peaches and Nectarines.**—Complete disbudding in the latest houses, being careful not to allow more growths than will be necessary to supply the bearing wood of next year, and to continue the extension or furnishing of the trees. Many failures in Peach culture are caused by overcrowding the foliage. The shoots may be 15 inches apart, and the branches 12 to 15 inches distance from each other. If the extension system is practised the distance may be increased with advantage. Very fine fruits result from this mode of treatment, but it is no use attempting it unless space be allowed the foliage to insure the thorough ripening of the wood. Any shoots outgrowing the limits assigned the trees should be stopped, and the laterals be pinched at the first joint. Carefully tie-in the shoots at the base, and pinch out the point of those retained to attract the sap to the fruit. Thin the fruit in good time, removing the smallest and worst placed. See that there is not any deficiency of moisture in the inside borders.

Syringing must be attended to twice a day in fine weather. In succession houses attend to tying-in the shoots, pinching laterals, watering and mulching inside borders, affording liquid manure to trees that are not very vigorous and which are carrying heavy crops. With the fruit ripening maintain a dry condition as regards the trees, and preserve a somewhat dry condition of the atmosphere by a free circulation of air; but do not allow the trees to suffer through insufficiency of water at the roots, or it may prejudicially affect the ripening of the fruit and the maturation of the buds for another year. The fruit on trees started early in the year has passed the stoning process, and is now swelling. Continue syringing until ripening commences, when it must be discontinued; but the border may be damped and mulched with short manure. If it is desired to accelerate the ripening of the fruit the temperature may be maintained at 65° to 70° or 75° by artificial means, and 80° to 85° or 90° from sun heat.

*Pines*.—Careful attention is necessary with fruiting plants at this time of year owing to the variableness of the weather, which necessitates the maintenance of a moderately high and moist atmosphere for plants with the fruit in an advanced condition of growth. This renders them more susceptible of injury by scorching if the ventilation is not carefully attended to. Examine the plants weekly, and when any are in need of water afford it liberally. Periodical waterings are not to be commended; the judicious application of tepid liquid manure or guano water is, however, useful. Plants where bottom heat is from fermenting materials will not require water so frequently as those where the heat is supplied by hot-water pipes. Admit air at the top of the house at 80°, the temperature ranging through the day from 80° to 90°, allowing a rise of 5° more after closing the house at 85°, with moderate ventilation; but if it be desirable to enlarge the crowns close with 5° more. Keep the heat regular at the roots at 80° to 90°, having resort to fire heat only to prevent the temperature falling below 70° at night and 75° by day. Syringe the plants about every other day, or less frequently according to the weather. Continue former instructions with respect of other stock.

#### FLOWER GARDEN.

Lawns require frequent attention in mowing, rolling, and sweeping. As the grass grows freely early in the season, frequent mowing may be practised to give the turf a close bottom. Coarse weeds are often so conspicuous as to disfigure the lawn, Daisies being most troublesome. Grub them up by the roots, and should this cause any bareness in the turf a little fine soil can be employed as a top-dressing. Sowing seeds of some fine Grasses, such as *Cynosurus cristatus*, *Festuca duriuscula* and *F. tenuifolia*, with Suckling Clover, about 4 lbs. each per acre, will soon improve the appearance, rolling the lawn well. Grass edgings should be cut with the knife, rolling before doing so after rain, which facilitates the cutting and gives a sharp well-defined edge. Remove weeds from gravel walks. Any walks having a discoloured surface or containing many small weeds may be broken up to a depth of about an inch, and have the surface raked occasionally during dry weather. After eradicating the weeds carefully rake the surface, and after rain roll it down. Transplanting Hollies and most choice evergreens may safely be performed this month, being careful to remove them with as many fibres as possible. Firm the soil well about them, and give a good watering after the roots are covered to settle the soil about them before finally filling up, and if the weather is dry a slight syringing will be of great benefit to them. A mulching of leaf soil will also be advisable, or a couple of inches depth of loose soil on the top is better than too close a surface. Hollies that are not so symmetrical as desirable may now be cut in.

Roses in most cases were greatly injured by the severe frosts of winter, but are breaking strongly. The cold weather has greatly retarded the growth, and aphides are appearing. Tobacco water has no equal for destroying aphides: a gallon of tobacco juice will make seven or eight gallons of liquid sufficiently strong for the purpose. Tobacco powder is efficacious, especially if applied on a dewy morning.

*Bedding Plants*.—It will be necessary to transfer these to frames and other temporary places in order to gradually harden them. Many of the hardier varieties may be placed near walls or in other sheltered

places where they can receive temporary protection in case of frost. Coleuses, Iresines, Alternantheras, and other tender plants will require the protection of glass some time longer. These with Lobelias, Verbenas, and Heliotropes can be planted out in the refuse of old Mushroom-beds, pits, or frames, in which they will grow strongly and not require nearly so much attention as plants in pots or pans. Asters, Stocks, Marigolds, and Zinnias may be sown now in light rich soil in cold frames kept close until the plants appear, then admitting air freely and watering as required. By the middle of June the plants will be ready to place out, and they succeed much better than those raised in heat.

#### PLANT HOUSES.

*Greenhouse*.—Tuberose may be placed on damp shelves to prevent them becoming dry, and at the same time lessen the necessity for giving water until they have made some growth. A little bottom heat is essential to secure root action. When growth has commenced remove the plants to a house or pit where they will have a temperature of 60° to 65°, supply watering liberally and keep them near the glass. Plants of *Richardia æthiopica* that have flowered through the winter may now be divided and planted out of doors in well manured beds. A position sheltered from winds is most suitable, and if temporary protection can be given in case of frost it will ensure the plants a good start. These can be lifted and potted at the end of September.

Cockscombs should be placed as near the glass as possible to insure dwarf habit. Sprinkle them to keep red spider in check, and do not allow the soil to become dry. Balsams need a light position and liberal treatment. The earliest plants may be supplied with liquid manure. Globe *Amaranthuses* requires to be kept cooler than Cockscombs, and to be more carefully watered. Show and Fancy *Pelargoniums* require liquid manure, especially for plants in small pots. Young plants of Zonal *Pelargoniums* intended for flowering after the show kinds are over should be potted if needful, stopping the shoots to ensure a branched habit; remove the trusses as they show, and when the pots are filled with roots supply weak liquid manure.

## THE BEE-KEEPER.

### BEES BUILDING IN THE OPEN AIR.

AT the close of an exceedingly interesting letter of Mr. Frank Benton, concluded in the last issue, and for which we are indebted to Mr. Neighbour, Mr. Benton apologises for *Apis dorsata* in these words—"We must not be prejudiced against the bees because they build their combs in the open air. Our yellow bee does the same thing in tropical countries, and when unable to find a suitable place to settle." I am glad to be able to corroborate Mr. Benton by an instance of this, the evidence of which still exists.

In the beginning of September, 1874, the Hon. and Rev. H. Bligh discovered a colony of *Apis mellifica* (our common bee) in a Privet bush near Henley. That the insects had been at least some weeks established was certain, for not only had a large quantity of worker comb been built, but in a good patch of drone comb the cells were stained by the exuviae of the males that had already left them, while a second set of grubs were far advanced. Since twenty-five days are occupied in maturing a drone from the egg, and eight or nine more would be required to bring the succeeding grubs to the condition in which they were found, we have but eight days left of our hypothetical six weeks for the bees to build much worker comb and then make preparation for colonising by turning their attention to the production of drones.

The handy work of this *al fresco* family was secured by cutting through the stems of Privet and removing the combs bodily, which was in no way difficult, as the whole of them had been tied together by interlacing twigs. I was honoured by having this specimen presented to me by the aforesaid gentleman who discovered it, and a few times since it has been used at lectures or lent to grace collections of curiosities, and has in consequence suffered after the fashion of the Temple Bar Memorial—going in parts to the cabinets of the curious, or rather, perhaps, suffering under the thumb of the destructive; but enough remains to bear testimony to Mr. Benton's statement. The leaves would appear to have been carved from the petiole by the clever bees "that nobody owned,"



they securing thus room for their combs and many points to which to fix them, so that the wind would not disturb their arrangements.

On one occasion here we found a cast that had started building between a fence and an old and dense Black Currant bush, while many have no doubt seen combs built under floorboards or between skeps and the backs of the sheds containing them; but in these cases the breeding chamber was under the hive roof, while the combs built outside would only be used for store until room could be found within, when every scrap would be removed into secure quarters. Bees occasionally display very singular power in adapting themselves to new circumstances, and it is impossible to say how far these bees might have covered themselves above had they been left undisturbed. Some few years ago, when I used from five to seven slots of wood as a cover in the position now taken by the quilt, one of these slots was by accident omitted. Two or three days after the bees had nearly completed a roof for themselves, made by adding wax and propolis at the edges of the exposed frames. These additions stretching towards each other had actually in places met. In transferring it is not uncommon to find doors narrowed and windows covered by partitions or curtains of propolis, and an extension of this instinct might have done a good deal towards saving these bees in the Privet bush from rain, if not indeed from frost and snow.—FRANK R. CHESHIRE.

## CALENDAR OF OPERATIONS IN THE APIARY.

### MAY.

THE labours of the attentive bee-keeper are this month beginning to show results. Colonies of four or five frames at the end of March should now have from eight to ten Woodbury frames of brood or their equivalent, and be crowding their hives from end to end. We must now determine whether we will endeavour to prevent swarming and accept surplus in its place, or whether swarm and super shall be our ideal. If the latter, we select our best colony, the bees of which present the characteristics we most value, and remove its queen in some manner that does not seriously thin the population of the stock in order that it may produce us a number of highly nourished young queens. The methods of doing this admit of numberless variations—e.g., we may take the queen and insert her in some queenless stock; or we may make a swarm of the queen and the whole of the colony, and place the hive, combs, and brood upon the stand of one of our strongest stocks to be repopled by its flying bees; or we may, without displacing the queen at all, give combs of her eggs to queenless stocks.

If the bees always produced their queens from eggs laid just before the removal of the mother sixteen days would elapse before the young queen would gnaw out, but frequently this happens on the twelfth day, when the first queen hatching would destroy the rest. We must therefore (if we would secure the immense advantage of giving ripe queen cells) on the tenth or eleventh day after one of the operations indicated swarm other colonies artificially, and insert the ripe queen cells now at command in the swarmed hives. The queen will quickly be out, and in nine days more should commence laying. We in this manner reduce the time the bees would naturally be without a queen by at least a week—a gain probably of ten thousand bees. We according to this plan made an artificial swarm on Saturday, and on Tuesday week we should make other swarms to give places for the queen cells then to be ready for insertion. In making the first swarm it is wise not only to reduce the entrance, but to reduce the amount of brood by distributing any combs of larvae which seem to give more work than the residue can accomplish. This may not always be necessary.

Where skeps are found with frame hives secure queen cells in one of the latter by any plan, and when these are getting near hatching drive swarms from the skeps, set them on the old stands, and insert the queen cells either in the feed hole, or fix them up between the combs by simply pushing the combs a little from each other to make way for them, when they will be sufficiently grasped to be retained in position. The bees will fix them, but after hatching they had better be removed. Cut the queen cells out with fully a square inch of comb attached, and be very careful not to pinch them. Do not be over-anxious about early swarming; excessive haste here hinders more than any other mistake bee-keepers commonly make.

Feed the swarms regularly, even in good weather. If they have foundation you may feed quickly if you like, as no undue amount of drone comb can be built. If no foundation is used feed slowly, and at night only. In using foundation with swarms fix with wax at the top, as well as using Cheshire's foundation fixers.

Supers or sections, if swarming is to be avoided, may be put on whenever bees fill the hive and honey is coming in freely. When this is done all sealed store combs had better be removed, which either gives space for placing sections in a frame to be hung in the hive body, or admits of decreasing the hive space by a tight-fitting dummy, and so by giving the bees less room below, the more surely driving them into the super. Cover the super warmly. Nothing pays better than well-made super or section covers, of which the teapot cozy is the type. An irregular rag of carpet, even if sufficiently

aesthetic for the tea table, would not keep the pot warm. In unfavourable weather feed with constancy and care, and then swarms will do as well as if we were in Madeira.

Nuclei can now be started with advantage. The best form for these seems to be a couple of ordinary frames of brood—some of it hatching and covered with bees—placed in a hive, duly contracted of course. In taking these frames from the stock be very careful that the queen is left behind. The nuclei may be made the day before the queen cells are ready for excision. At the close of the day on which they are made take a peep at them, and should they seem bare of bees shake the bees from a frame taken from the hive which provided the nucleus on to a board placed at their door. Most of the bees will run in, and all but the oldest will remain. After the queen, hatched from the given cell, has mated and has commenced ovipositing you will either build up the nucleus into a stock or remove the queen. By attentively supplying eggs and grubs whenever the little colony is able to undertake the care of them it may be made to supply several queens in succession, and yet be constantly growing in strength so as to pass into the winter as a fine stock.

So much for fine-weather work, which should also include all the preparation which foresight can suggest in the way of sections, supers, and additional hive accommodation; but success, if success means profit, largely may depend upon painstaking feeding in bad May weather, of which we generally have a share. Just when cold drizzle or sleet makes outdoor work unwelcome the bees must be fed. Neglect after a bad day when gathering has been suspended causes the devouring of thousands of eggs, and this means thousands less of gatherers when the later glut comes. As money makes money so sugar makes honey. Let us keep up artificially if we cannot get naturally an uninterrupted course of grub-raising, and even a short honey glut will not leave us without results. One of the very best accounts a man had ever to give of a swarm relates to one of mine that passed through a May more cold and wet than any that I remember; but I loved my bees, and they were not ungrateful.—F. CHESHIRE, *Avenue House, Acton, W.*

## TRADE CATALOGUES RECEIVED.

Cranston's Nursery and Seed Company, King's Acre, near Hereford.  
—*Catalogue of New Roses.*  
Ewing & Company, Eaton near Norwich.—*List of New Roses.*  
Francis and Arthur Diekson & Sons, The Upton Nurseries, Chester.  
—*Catalogue of Bedding Plants and New Roses.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Camellia Unhealthy** (O. G. R.).—Your plant is much infested with either scale or mealy bug, or both. It is impossible for any plant to thrive with the foliage in such a dirty state. There is only one mode of cleansing such leaves as those you have sent, and that is by sponging them carefully with warm soapy water. This you appear to have done, but the sponging has not been sufficiently thorough or sufficiently frequent. After you have once cleansed the foliage you may do much to keep it clean by adopting the mode recommended to another correspondent for the prevention of mildew and insects on Roses. Your plants have been much neglected, and as you have had them two years we presume you have not had time to give them the attention they have needed.

**Mildew on Roses** (A. A.).—Your Roses appear to be attacked with the orange fungus, which has also spread to the Ferns. It is not easy to extirpate. Syringing with a solution made by dissolving 2 ozs. of soft soap in a gallon of water and dusting the affected parts when wet with flowers of sulphur will, if persisted in, probably prove beneficial. The house must be well ventilated. Mr. Bardney, who grows Tea Roses extensively, keeps their foliage and also that of fruit trees under glass perfectly free from mildew and insects by the plan that was described as follows in our columns last year:—"About 2 lbs. of soft soap are placed in a saucepan with a little water, and boiled for about twenty minutes. This is mixed with five or six gallons of water and kept in a large flower pot. Half a pint of the solution is placed in a large waterpot full of water used for syringing. Neither insects nor mildew appear able to exist on the foliage, while nothing can exceed the admirable condition of the trees and Roses. It is important that it be used regularly—that is, whenever the syringe is employed."

**Exhibiting Pansies** (L. J. K.).—We are not aware that the boxes can be had "ready made." It is not usual for seedsmen or florists to keep them in stock. Any intelligent carpenter can make them, and a brazier can supply the

tubes for holding water to support the flowers. Half-inch deal is stout enough for small boxes to hold a dozen flowers, but if the boxes are larger the wood is better a little stouter. They should be painted green. The boxes, unless otherwise stipulated by the authorities of the show, may be 5 inches high at the back, 3 inches in front, and 18 inches wide, with holes for the tubes not less than 2½ inches apart.

**Extirpating Ants (C. M. K.).**—They are most difficult to destroy or drive from their haunts. They do not like guano sprinkled in their runs, nor paraffin. If half-picked bones are laid in the runs they will speedily be covered with the insects, and by plunging them in boiling water they are mercifully killed. A sponge partially saturated with treacle has the same effect in attracting them. Camphor dissolved in water and poured in their haunts makes them uncomfortable, and carbolic acid diluted with twelve times its weight of water and sprinkled in their haunts is said to drive them away. Cotton wool wrapped round the stems of Peach trees and kept moist with tar prevents the ants ascending. They sometimes eat off the stamens of the flowers, and also attack the ripe fruit, but otherwise do not do injury unless they make their nests in flower pots. They mostly abound where insects are present, and you will find it very advantageous to permit no aphides or other insects to congregate on the plants or trees in your houses. You may sow the Mangold Wurtzel seed in drills 2 feet apart, and cover the seed an inch deep. A mixture of 5 cwt. of guano and 2 cwt. of common salt per acre is a good manure for this crop on moist soils.

**Cyclamens not Thriving (A Brixton Amateur).**—The root-action is defective, caused probably either by watering excessively or insufficiently; or the plants may have been placed in a too cold, dry, and draughty house during the winter. As they have made no leaves you will have a difficulty in restoring the health of the plants. As soon as weather permits turn them out of the pots, removing a good portion of the old soil, and plant them out in your garden, watering them as needful during dry weather, and if leaves are formed take up and pot the plants in early autumn. To insure a stock of healthy Cyclamens it is desirable to sow some seed yearly, as the plants as they get old are prone to disease and deterioration.

**Sowing Stocks and Asters (Alaric).**—It is not too late for sowing seeds of these. If you can spread 3 inches of very much decayed manure in a frame, or even a sheltered border, covering it with an inch or two of soil, and sow the seeds thinly in drills, you will be surprised how rapidly the plants will grow if they are watered as needed, with tepid water if possible. In all probability the plants thus raised will be finer before the summer is over than those that were raised in heat in March, and which, as you say, are now "tall, thin, and weakly."

**Cucumbers not Growing (Puddle).**—Your plants have received a check of some kind, it may have been by a too low temperature or insufficient atmospheric moisture, or it may have been the other extreme—too much bottom heat, which has injured the roots. You afford no details whatever either as to the temperature or treatment to which the plants have been subjected. With bottom heat of about 80° and a minimum night temperature in the house of 65°, increasing by day to 70° without sun and 85° with sun, with atmospheric moisture in proportion with the heat, the plants ought to grow freely if the soil is suitable and the foliage kept free from insects. Rough turfy loam with a third of leaf soil and wood ashes added will be suitable for planting in. You had better syringe the plants with a weak solution of soft soap and tobacco water, or after syringing with pure water dust the foliage with tobacco powder. If, however, the plants are much infested with insects you will not find it easy to cleanse them.

**Amaryllises not Flowering (Idm).**—They are stove plants, and very few of those succeed in an ordinary greenhouse temperature. Your plants have also in all probability been much overpotted. Unless the pots are crowded with roots you cannot expect the plants to flower well; they, however, really require more heat than the greenhouse affords. Shelves in the Cucumber house would be a more suitable position for them. Your proposed treatment of the Strawberries is correct.

**Garden Plans (R. P. Skipton).**—You afford us no guide whatever to enable us to decide on the number you require. Without having particulars as to the size of your lawn and an outline of your requirements, we might cause you disappointment instead of render you assistance. If you will write to us more fully and send stamps for as many numbers as you would like to have, we will endeavour to aid you. All the back numbers are not in print; those that are can be had for 3½d. each.

**Cordon Pears (F. J.).**—Begin pinching as soon as the shoots are from 3 to 6 inches long, leaving from two to five leaves according to the condition of the shoots. We cannot be more explicit as to the number of leaves, because there is a considerable difference in the habit of growth of Pears, some being coarse and long-jointed while others are compact and short-jointed. Do not attempt to confine the pinching to any particular part of the stem, for the lateral growth does not grow equally fast. Some shoots are always first; pinch these, and do others as they become long and stout enough, and so let the process be so gradual as not to check the entire growth at the same time. This pinching may be continued till the end of July in the south, but it must be discontinued proportionately sooner northwards. As a general rule pinch the midsummer growth once, and then let all subsequent growth alone till the leaves fall. Late pinching only induces an abortive weakly growth from buds that should rest dormant for a strong spring growth. Nip off the end of the leading shoot when it is a foot or 18 inches long, and you will thus secure a second growth of equal length annually till the top of the wall is reached.

**Raising Pansies (E. James).**—As all your Pansies are good you may, by saving seed from them, expect to obtain some good varieties, although a great number will be inferior to the parents. Where artificial fertilisation is resorted to it is advisable to exclude bees and other insects; but if you have not had experience in this delicate operation you had better allow the plants to seed naturally, not allowing an inferior variety to flower in your bed. It will not be well to allow many pods to ripen on each plant; one or two will be better than more, as then the seed will not only be finer but the plants will not be exhausted, as they must be by maturing a heavy crop. Rather strong soil with gritty matter incorporated and enriched with decayed manure, preferably cowdung, will be suitable, planting rather deeply. Show Auriculas need the protection of glass; many of the Alpines succeed in the open ground, the site being well drained.

**New Cucumber (W. Wells).**—If you desire to submit fruits of your Cucumber to the Fruit and Vegetable Committee of the Royal Horticultural Society you must send them direct to South Kensington in time for one of the meetings. We do not convey specimens of any kind that are sent to this office

to any exhibitions. You can obtain all necessary particulars for exhibiting fruits by writing to Mr. Barron, Royal Horticultural Society's Garden, Chiswick, London. The fruits you have sent are very good, and the variety is doubtless a very useful one; but whether it is distinct from all others we leave the Committee referred to, to determine when specimens are placed before them.

**Summer-pruning Pear Trees (D. E. F., Bradford).**—We cannot better reply to your questions than by publishing the following remarks by an excellent gardener and successful cultivator of hardy fruits:—"Summer pruning is the most important operation of fruit-tree culture; for it is evident that if the laterals are not shortened the crop must be small from the vigour of the tree being expended on a quantity of spray, and the fruit must be badly coloured and ripened from its being shaded by the needless crowding of the foliage. It is not the present production only, but the crops of succeeding years that are injured by neglecting to summer-prune; for the crowding of the shoots and foliage prevents the spurs receiving sufficient light and air for their full maturation and perfection. Summer pruning has for its object the maintaining of the tree in order and fertility; it tends to check overluxuriance, prevents the overcrowding of the shoots, secures the formation and perfection of the spurs and fruit-buds, and favours a more full perfection of the fruit. There is not only some difference of opinion as to the time, but also as to the amount of summer pruning. The time is solely dependant on the season and the vigour of the trees. The amount of pruning depends on the growth of the trees operated on, for that of some trees is so weak that it may be necessary to encourage it; others are not weak in growth, but are vigorous enough to produce fine fruit; whilst some are so vigorous that the spurs are not nearly so plentiful as the shoots, and the fruit fewer in number than the spurs. Now, to fix any time as the most suitable for summer pruning, and to limit the extent of the pruning to any one rule is impracticable, as it is evident that different trees require different treatment. All shoots and laterals not required for the extension of the tree, or to fill up vacant space, must be summer-pruned or pinched, whether they spring from the young or old wood; but the leading shoots, or those shoots required for the extension of the tree, should not be pruned, except in the case of pyramidal or bush trees, in which, when the leading shoots make a greater growth than 18 inches, these may have their points pinched at that length. If the trees have covered as much space as is allotted to them, then the leading shoot, and, in fact, all the shoots, should be stopped or pruned in the same manner as the laterals. Trees that are moderately vigorous, or those with shoots not exceeding from 9 to 12 inches in length, should not be pruned until the fourth week in June or first week in July, according to the season, when they should have the points of all the laterals taken out at the sixth leaf, and when they push again, as in all probability they will, take out their points at the third joint above the last stopping, or from the base of the last growth. Trees that are vigorous, and make shoots when unrestrained of 15 or 18 inches in length, should have the points of the shoots taken off above the fifth leaf, and all growths after the first stopping should be pinched off at the third leaf until the beginning of September, when pinching should cease. Trees of very strong and rampant growth should be stopped as soon as they have made four leaves, and repeatedly throughout the summer up to September at the third leaf, after the first stopping. Trees upon the Quince stock may be stopped in all cases one or two joints closer than those on the Pear. The most vigorous shoots will be those at the top of the trees, or where the greatest amount of winter pruning is practised; but, wherever they are, the strongest shoots will of course attain a length fit for pinching sooner, and they ought to be the first stopped or pinched, and in the course of a few days the remaining shoots should be stopped. In all cases, in calculating the number of leaves for stopping, do not count the latent or undeveloped buds at the base of the shoots, of which there are always two or more; only the leaves should be counted, and not the joints or buds. Any trees with the branches weaker in one part than in another may have the laterals upon the strong branches closely pinched, whilst those upon the weak branches are allowed to grow without stopping until September, when a few inches may be cut from the extremities of each, and these in winter should be cut back to within an inch of their base. In spring a number of shoots will spring from the short stub left. All of them except one should be pinched, that one being left to grow unrestrained until September, when a few inches of its point may be removed, and cut close away at the winter pruning. The shoots pinched throughout the summer should be cut in winter to within 1 inch of their base. We have now a stub two years old, on which fruit-buds are usually produced. It is hardly necessary to add that the short stubby shoots (spurs), with a bunch of leaves, are not to be stopped, for on them fruit-buds form."

**Extension-trained Fruit Trees (Practice).**—We have received your communication, but it is necessary that we be informed of the name and address of the writer before the propriety of publishing the letter is considered.

**Names of Plants (A. T.).**—The specimen with small leaves is Diosma ericoides, the other was insufficient. (W. D. H.).—*Mercurialis perennis*. (W. H. W.).—1, *Lapageria rosea*; 2, *Pittonia Verschaffeltii*; 3, *Fuchsia splendens*; 4 and 5, insufficient; 6, *Cissus discolor*. (G. O. S.).—*Narcissus Jonquilla*. (T. S.).—1, *Omphalodes verna*; 2, *Dielytra eximia*; 3, *Ranunculus amplexicaulis*; 4, Very much crushed, but resembled *Atropa Belladonna*. (J. P. T.).—*Pyrus amygdaliformis*. (L. L. D.).—1, *Caltha palustris*; 2, *Aubrietia Campbellsii*; 3, *Alyssum saxatile*; 4, *Trollius asiaticus*.

**Bees—Various (Buzz).**—1. Bed-ticking is too expensive to use under the quilt. Common calico lasts a season, and renewed in the spring keeps fairly clean till the autumn. Haircloth is practicably indestructible, but expensive, while it is too stiff to settle down well over the hive, and will not fit itself over flour-cake as calico does. 2. Plum bloom yields honey, but bees seem to prefer Cherry to it. If the latter abounds the former is less visited. 3. Bees generally gather honey and pollen at the same time. With some plants, however, this is impossible, Catmint by example; but these matters can only be fully explained at considerable length. We are contemplating an article in relation to it. Young bees take an airing a time or two before gathering anything. Where brood is being fed much water is carried (especially with an east wind) if the air be only warm enough. 4. We never hesitate to open a hive if any object is to be served. We have had every comb out of a hive for thorough examination five or six times daily for three weeks in succession, and even this did not, as we think, hinder the bees to any serious extent, while injury there was none. They get quite to understand the handling as regular, and offer no expostulation. 5. Yes, 50° Fahr. in the shade is warm enough if the air be fairly still. 6. It is not well to interfere too much with the brood of any hive, but often a queen may not have sufficient bees to cover all the eggs she could lay, in which case she could spare a comb of eggs without loss, as an empty comb in its stead would quickly be refilled. The eggs given to bees raising a queen would do them good every way. It is in this manner we keep our nuclei, engaged in raising queens, strong. They are practically queenless constantly, but eggs given them in exchange for empty combs bring them into condition to form colonies as soon as their work of queen-raising is at an end.



## COVENT GARDEN MARKET.—MAY 11.

TRADE more lively, with good supplies of indoor fruit quite sufficient for the demand.

## FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	6 to 4	6	Melons.....	each	0 0 to 0 0
Apricots.....	box	0	0	0	Nectarines.....	dozen	0 0 0 0
Cherries.....	½ lb.	0	0	0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	12	0	16 0	Peaches.....	dozen	0 0 0 0
Figs.....	dozen	10	0	12 6	Pears, kitchen..	dozen	2 0 3 0
Filberts.....	½ lb.	0	0	0 0	Pears, dessert..	dozen	4 0 8 0
Cobs.....	½ lb.	2	0	0 0	Pine Apples....	½ lb.	1 0 2 0
Gooseberries...	½ sieve	0	0	0 0	Strawberries...	per lb.	3 0 8 0
Grapes.....	½ lb.	4	0	8 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ case	12	0	18 0	ditto.....	½ 100	0 0 0 0

## VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	2	0	5 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1	0	1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1	0	2 0	Pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0	9	1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0 0 0 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1	6	2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0	0	3 6	Radishes..... doz.	bunches	1 6 2 0
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2	0	4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 8	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	3 0 3 8
Fennel.....	bunch	0	3	0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0	6	0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 0 0 0



## POULTRY AND PIGEON CHRONICLE.

## AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 367.)

AMONG patent haymakers Howard's deserve notice, as for many years these machines have required no alteration in their construction. The wire screen, however, to prevent the grass lodging on the gear has made this implement complete. Like all other well-devised labour-saving machines this one is of great importance, especially in the expedition of the work. Any implement like this which is calculated to shorten the hay-making period is of great advantage; and in many cases, and especially in certain catching seasons, its use in a single year will more than repay the cost of the implement. In the construction of this machine the forked barrels are so arranged as to render clogging almost impossible. The forks are mounted in sets of three and placed in a zigzag position, an arrangement which equalises the work and thoroughly separates and distributes the crop. The gear work is both strong and simple, and by a simple eccentric movement of the main axle the rakes can be quickly changed from the forward to the backward action. A similar movement is also used for raising or lowering the fork barrels. When, however, it is once set for the forward movement no change is required to use the machine with the backward action, except the reversal just described.

The same firm has a patent self-acting horse rake, which is constructed upon the simple brake principle, and is easily managed. The arrangement for supplying the load is extremely simple, the driver, if riding, merely having to touch a lever with his foot, and, if walking, simply to take hold of a lever with his hand. In consequence of the demand lately sprung up for rakes of a larger capacity, as well as with higher wheels, such are now made if required.

Owing to the reluctance of farm labourers to effect any of the heavy work, such as mowing, and the bad work often made when it is done, it becomes imperative to use mowing machines. The "Wood" mower deserves notice. The main frame of the implement is constructed of cast iron, and is both rigid and compact.

Its strength, simplicity, and durability have been proved during the past ten years, during which time it has undergone little or no material alteration. These machines are drawn by two horses, and with strong animals, such as we have continually recommended for use in these columns, a good half day's work can be done in a satisfactory manner. A change of horses, so that each pair may do six hours' work, is specially necessary, in order that now the days are long a large amount of work may be done. The only difficulty now is in the case of water meadows, where mostly the grass can only be cut with the scythe in consequence of the numerous trenches. In some of the catch meadows, however, the mowers can be used, because the narrow and shallow trenches for catching and spreading the water offer no impediment to the working of the machine as compared with the deep and deviating carriers in the flood meadows. The "enclosed gear mower" has various new features peculiar to itself, all the gearing being covered and protected from dust and dirt. There is also no gearing in the wheels encased in the frame. The wheels are 31 inches high, with longitudinal and centre rod-ribs, and will consequently travel on the road as smoothly as a cart. The new one-horse mower is constructed upon the same principle as the last-named, and as only one horse is required to work it its use will be a great advantage on small occupations, or for park-lands where but few horses are kept.

## WORK ON THE HOME FARM.

*Horse Labour.*—Work on the fallows for roots will still be required, especially on those farms cultivated upon the four-course rotation, for in that case the Wheat will be sown for the most part after Clover lea, which has been generally rather foul with Couch or Water Grass in consequence of the succession of untoward seasons for several years past, and when the root crops succeed Wheat out of lea the fallows always need much work, even in a favourable spring. In some cases, however, the Mangold seed is not all drilled, nor Carrot seed either; but the sooner they are sown the better. Our earliest-sown Mangold seed germinated well, and the young plants have produced second leaves with great regularity. The seed was drilled on the 12th of April, the land having been liberally dressed with yard manure, besides artificial manures applied in drilling. Some farmers object to sowing so early, as they think many of the roots will produce seed stems; but when that happens we cut off the stem close to the crown of the bulb, after which the roots will advance nearly as well as the other plants. This is a favourable time for planting Cabbages or Thousand-headed Kale; it is, however, a slow process if planted by hand, and where the plants are large enough we lay them along the furrow and plough them in with the one-horse implement by turning a furrow over on them, the horse walking out of the furrow. A man should follow with a small hoe, and place a little soil over those which are exposed, and release any plants entirely buried; in this way they may be planted in the driest weather without injury; the only difficulty we have experienced is caused by rooks pulling up the plants.

*Hand Labour.*—Men and women may be employed on a rainy day in the manure house breaking, mixing, and preparing artificial manures in readiness for drilling with seeds; also the ashes should be broken down and screened, for when they are kept in the manure house they will always be dry and ready for use. We recommend the home farmer to look out for a roomy building to store manure in, and nothing answers the purpose better than a barn mow after being floored with prepared chalk or concrete. Men will soon be required to cut the grass round the hedges and fields upon all dry land, and this growth is often composed of wild Parsley and Hogweed, which may be cut twice a year—in May and July—and thus keep the hedges and borders clean, and prevent weeds from seeding. At the same time we find, on dry soils especially, very early fodder available in this way for young stock and breeding sows in the yards. We have often found our young fattening cattle do even better upon such green food than upon the best Clover, and they eat it in preference. A farmer occupying an enclosed district annually feeds twenty dairy cows entirely upon such border and coarse hedge growth, giving them also 4 lbs. of cake each per day, and he obtains a large yield of milk of good quality, though it would probably affect the butter. To make the most of his banks and borders, as well as hedges, he keeps them all closely trimmed, so that the young wood, even Brambles whilst young, furnish food or manure. Another farmer cuts all the Sedge-like and coarse grass in the water meadows into chaff, mixed with clean Barley or Oat straw, to feed either young stock in yards or dairy cows at the stalls at milking time.

*Live Stock.*—The sheep on the hill farms where breeding flocks are kept have lately been doing well in the water meadows at daytime and folding on Rye at night time. The lambs fare worse, unless Mangolds have been reserved for them; in which case, if the cut



roots are mixed with bean, barley, or cake meal, the lambs will thrive extremely well. After the Rye as a night fold is gone Trifolium or Vetches will do, but at daytime folding on Giant Saintfoin will help them. Italian Rye Grass must not be forgotten, because it ought always to be at hand, like Mangold, to prevent scarcity in late springs or very dry summers until the 21st of June, when it is usually ploughed in and the land pressed and drilled with Red Mammoth Turnips or Rape. On the corn-growing farms and where Potatoes are cultivated there is no room for sheep in the summer months, so they will all be sold as fast as shorn. Ewes and lambs should be sold fat together, or nearly so; for on such farms we hold to the policy of growing and reserving food for sheep in the summer, and feed it in the winter and early spring months: except that, instead of risking the whole of our Clovers for hay, we like to cut some of it several times and feed cattle with it in their boxes, with cake and some Mangold also if it can be saved.

#### MALT SPROUTS.

THE amount of nitrogen and phosphoric acid in malt sprouts render them not only valuable as a food, but also as a fertiliser when applied to crops. Whether they can be economically used as a fertiliser depends upon the price at which they can be obtained. If used for cattle food they should be scalded before being fed. They are very light and dry when sold, and will absorb a large quantity of water. Boiling water not only renders them more digestible, but it makes them a safer food. If fed dry they are apt to swell in the animal's stomach and produce hoove. They are obtained from Barley when made into malt. In this process the Barley is put into a large tank to soak for two or three days, or till it has soaked about half its own weight in water, it is then spread about a foot thick upon a floor, when germination takes place. This process is continued till the plumule, or that shoot which is destined for the future stalk which runs under the husk, reaches the other end of the grain, while the radicle, or that which has to form the future root, grows right from the grain; at this stage further growth is stopped by expelling the water upon the drying-kiln. It is then screened, which removes what is termed the radicle, the product being termed malt sprouts. In England, where they are considered a valuable food, they are known as malt combs. They are more valuable when properly prepared than brewers' grain, but it costs both labour and fuel to put them into so digestible a condition as the brewers' grains. They contain, however, more nitrogen, say about  $4\frac{1}{2}$  per cent., in their dry state, but when soaked with water to the same extent as grain they contain very little if any more. Of phosphoric acid they contain 2 per cent. and  $2\frac{1}{2}$  per cent. of fat, and when obtained from the maltster they contain but 8 per cent. of moisture. This gives them a great advantage in hauling over brewers' grains, which, as they are received from the brewers, will contain 80 per cent. or thereabouts of water. The sprouts contain in a dry state 45 per cent. of starch and sugar; brewers' grains if as dry as malt sprouts would contain in all probability as large a percentage of starch as the sprouts contain of sugar and starch, but a considerable part of the starch in the grains is converted into sugar by the fermentation which the grains undergo after they are brought from the brewery.—(*American Cultivator.*)

#### VARIETIES.

**PHEASANT AND POULTRY MEAL.**—We have received samples of the Pheasant food, poultry meal, and tonic prepared by the Royal Norfolk Pheasant and Poultry Food Company. The meals appear to be well ground and blended, and the tonic is intended to provide in a convenient form the amount of stimulant necessary to carry the young birds over the critical periods in their growth.

— **BETTER THAN RENT REDUCTIONS.**—The difficulty which land-owners and their agents now experience in the letting of vacant farms, especially where such happen to consist of heavy arable land, should lead them to do all in their power to encourage tenants to lay down such to pasture. In many cases the tenants would be quite willing to do this provided the seed were found; and a better investment of money cannot be made by the owner. A discount of 10 per cent. is an immediate advantage to a needy tenant; but an outlay of 15 or 20 per cent. upon permanent pastures, warm cattle sheds, liquid manure tanks, drainage, &c., will prove a lasting boon to the occupier, and a future source of greatly increased value to the land-owner.—(*Journal of Forestry.*)

— **"THE PRACTICAL FISHERMAN."**—A beautiful volume under the above title, written by J. H. Keene, and published at the Bazaar

office, has been sent to us. It is admirably printed and well illustrated, and will no doubt be welcomed by all who are interested in the subject on which it treats. The author has evidently endeavoured to render the book as complete as possible, and we do not quite agree with him, as stated in the preface, that it is a "crude attempt" to supply a deficiency in literature of this kind; it is to our mind the reverse of crude, as besides giving detailed instruction to guide the inexperienced angler, much information is supplied relative to the history and habits of the several kinds of fish. The researches of other writers on the subject are embodied in the book, not as is stated "by paraphrasing their writings without direct acknowledgment," but by quoting them in a manner which is highly commendable.

— **THE WHEAT CROP IN THE UNITED STATES.**—A recent telegram announces that despatches to the *Chicago Times* from all sections of the North-west show that the spring Wheat is in excellent condition. The principal spring Wheat regions are Minnesota, Nebraska, and Dakota. All show increased acreage and unusually promising prospects. The season is several weeks later than usual, but the warm weather and the rains are pushing the crop ahead. Minnesota yielded over four million bushels last year, and Nebraska over two millions. The yield in both this year is estimated at 20 to 25 per cent. greater. More winter Wheat than ever before has been grown in all sections, and the prospect of an unusually large crop is good. The weather favourable everywhere.

— **LORD WAVENEY ON AGRICULTURAL DEPRESSION.**—Lord Waveney has addressed a letter to the Secretary of the Norfolk Chamber of Agriculture on the subject of agricultural depression. His lordship observes that the system of farming in England has been one of isolation under an appearance of independence. He considers that farmers require associations for obtaining a fixed supply of steam power for receiving into store for the purpose of resale the products of the farms of members, for advancing funds for the purchase of stock, and for dealing with salesmen in the great towns. Every process in cultivation must be abridged, and every barrier between the producer and the consumer, so far as may be, removed. Lord Waveney adds that he does not attach much importance to legislation, which at best is to warn rather than to instruct.

— **IRISH BUTTER.**—Complaints are occasionally heard of the quality of Irish butter, but the *Cork Herald* states that at the Melbourne International Exhibition that butter made in Ireland has again, as it did in Paris also, come off victorious. There were five orders of merit, and the first was given to Mr. T. T. Clanchy for butter which he sent out from Cork in December last. Our contemporary observes, it speaks highly for the quality of Cork butter that after crossing the tropics and being packed for six months this butter obtained the first award.

— **EPHING FOREST.**—The bye-laws made by the Conservators of Epping Forest have been allowed by the Duke of Connaught and Strathern (the ranger), and are now in force. Now the Corporation have this Forest entirely under their control they intend to make more satisfactory arrangements for keeping it in good order and preserving it from such injury as it has recently been subjected to. Only a few days ago 12 acres of brushwood were destroyed by fire, and other lawless acts have been committed. We trust the keepers will be more vigilant, and bring to justice any offenders who may be found damaging the Forest, which has been secured for the public at so much trouble and cost.—(*City Press.*)



#### PRACTICAL SCIENTIFIC BREEDING.

GENERAL PRINCIPLES.

(Continued from page 306.)

A KNOWLEDGE of the season of the year which is most advantageous for hatching is of primary importance in regard to the

production both of exhibition and of stock birds. The considerations affecting these are various, and differ in some points while agreeing in others. No general rules available for both sexes or for all the breeds can be given; but a broad line of distinction may be drawn between those breeds in which size is of primary importance and those in which it is not, and this will suffice for our purpose.

The large breeds, especially the Asiatics, take a long time to mature, and the cockerels take longer than the pullets. It is only by very early hatching that large size can be attained in the first year. The best known breeders of Brahmas, for example, take care to have a number of January chickens to select cockerels from, and even at the late shows cockerels hatched after March have very little chance. It is equally important for the breeding pen that the cockerels should be as matured as possible. It may therefore be laid down as a general rule that cockerels of the large breeds should be hatched as early as possible—certainly during the first three months of the year. As to the pullets the case is somewhat different. Not only do they naturally mature earlier, but it is also more difficult to retard the maturing process with them. Cockerels may be kept growing, but early-hatched pullets will insist upon laying some time in the autumn. This is a disadvantage in two ways. In the first place, a laying pullet soon loses condition and that bloom which is such an attraction; and in the second place, she probably will lay herself out before the eggs are required for the early hatching. Of course for the early shows early-hatched pullets as well as cockerels are a necessity, but the really important shows come late in the year; and for these, as also for providing eggs for early hatching, pullets hatched in March and April are best.

A great deal towards hastening or retarding the maturity of a bird may be done by judicious feeding. As to this we shall have a word or two to say later, but we may here refer to the other means usually adopted to retard maturity. The cockerels and pullets are in all cases separated when about two months old, and are kept not only separate but out of sight of each other. An old cock is sometimes put to run with the cockerels to keep them under and prevent squabbling, but unless he be well chosen and free from much tendency to bullying the youngsters, this sometimes does more harm than good. It is best that only cockerels of nearly the same age should run together, and the younger they are when first put together the less will be the chance of any quarrelling. A dozen cockerels in a moderate-sized run with an occasional change of run will do better than a larger number in an unlimited space.

The pullets are more easily managed in some respects, but the great difficulty with them is to retard their laying so long as to give them time to mature, and at the same time not to drive them into a moult or materially injure their laying qualities. Here, apart from feeding, the most successful method is to move them from run to run as they show signs of laying. Even with laying hens a move to a strange yard generally checks the laying for a few days, and the effect is more marked with pullets which have not laid. This must not be carried too far, or a moult may be brought on, and the bird thus rendered useless both for exhibition and early laying.

We may mention here that some exhibitors manage to attain great size the first year by moulting out their early hatched chickens before the great shows. Chickens as a rule only moult their chicken feathers gradually, and once they have attained their adult plumage retain it until their second year, when they of course have a regular moult. Asiatics grow a good deal at the time of their first regular moult, and by inducing a regular moult in the first year great size can be attained. This can only in the case of January-hatched chickens be done in time to get the birds moulted out for the great shows. They are allowed to mature tolerably early, and then by feeding and heat a moult is induced. It is risky work at best, and the birds lose in freshness what they gain in size, so that we prefer the other method.

Although for the purposes of the coming year late-hatched birds are of little use, still it must be remembered that Asiatics continue to grow, or rather make a new growth in their second year. We have known late-hatched cockerels which were apparently far too small and defective in colour turn out really fine birds after their first adult moult. Very late-hatched chickens sometimes retain a part of their chicken feathers, and thus appear defective in colour, which is apt to mislead beginners. If, therefore, chickens from some of the best birds cannot be got early enough to mature in the same year, it is well to hatch some later, and keep them over for use after their first adult moult.

Another matter as to which beginners require a word of caution is as to the relative importance of the earlier and later shows. A really promising bird should not be forced on to maturity to win

a prize or two early in the season at the sacrifice of his chances later on, and also to the detriment of his ultimate development. Birds thus forced on are almost invariably spoiled, and the experienced exhibitors only sacrifice their mediocre birds for the early shows, keeping the really good ones for the Palace and Birmingham, where the winning of a prize is of some account and not at once forgotten.

The breeds in which size is not regarded as of primary importance are more easily managed. As to these, the best plan as a rule is to hatch the chickens in March and April, when they are most easily reared and come in well for all the most important shows. Of course, those who desire to compete at the very early shows must have a few chickens before March; and where there is any special point which requires time for its complete development, such as the face of the Spanish birds, the early chickens have the best chance, but with these exceptions the March and April birds do best both for show purposes and the breeding pen.

Bantams require a special word or two. Here small size is an important matter, so that late hatching and early maturity are the points to be aimed at. April, May, and even June are the best months for the Bantams. They are in this way suitable for keeping with the larger breeds where variety is desired, as the hatching seasons do not to any extent clash with each other.

(To be continued.)

### TURKEY REARING.

WHEN the young Turkeys appear in the outer world do not lift up the old hen to see how many eggs have hatched, but restrain your desire to count your Turkeys, and let them alone for at least twenty-four hours. They will not require food during that time, and as they are very delicate when first hatched it is best to avoid handling until they get strong on their feet; then remove them with the mother hen to the coop and pen, which should be all ready for the occupants.

The coop must be of good size, slant-roofed, and tight enough to keep out rain. Where the ground is not wet, and the coop can be placed so that the rain will not wash under it, it will not be necessary to have a floor in the coop; but if you have any doubts about being able to keep the young Turkeys dry and comfortable during a rainy spell, you had better put in a board floor and cover with gravel or sand, which should be renewed as often as every other day. When the mother Turkey is left to herself she chooses a new resting place every night, and when you confine her in a coop you must imitate her example and give her a clean place by moving or cleaning the coop often.

Make a pen or yard in front of the coop by placing boards on edge and fastening them in position. This pen should be from 15 to 18 inches in height, and for a family of fifteen young Turkeys should enclose about 40 square feet.

When safe in their "house" and yard give the little Turkeys their first meal, which should be stale wheaten breadcrumbs soaked in milk, and hard-boiled eggs. Now when I say hard-boiled eggs, I mean eggs that have been boiled half an hour. Boil an egg five minutes and it will be tough and indigestible, but boil it half an hour and it will be mealy and easily crumbled. When four or five days old commence feeding curds, and give all the sour milk they will drink. Chop Onion tops and Lettuce, and give with the food until they commence picking the young and tender grass. Twice or three times a week give a little pepper in the food. Pour boiling water on the pepper, steep a few minutes, and then mix a few spoonfuls of this pepper tea in the food. Do not make too strong, too much pepper does more harm than good. When they are from a week to ten days old commence adding well-cooked corn meal to their daily food, increasing the quantity day by day until at five or six weeks they are able to take full rations of meal and boiled Potatoes. When six or eight weeks old you may feed cracked corn or Wheat screenings at night. From the time when you commence feeding the young Turkeys until after they are fully feathered and have thrown out the red on their heads, feed five or six times a day; then if insects be plenty they will thrive on two meals a day—cooked corn meal and Potatoes in the morning, and cracked corn or other grain at night. Sometimes grasshoppers are so numerous that Turkeys will thrive on a small ration of grain once a day, and some seasons I have turned my young Turkeys (after they were well feathered up) out without any breakfast, and they always came home at night with full crops; but I always threw them a few handfuls of grain to keep them in the habit of coming home to roost.

Keep your Turkeys growing from the start if you expect them to pay well when you send them to market. Do not imagine that you can half starve them until a few weeks before thanksgiving, and

then stuff them so that they will weigh as much as your neighbours' fowls that have been well fed from the shell.

This may sound like a great deal of work, and you may think that I am inclined to be "fussy" and particular about my Turkey feed. Well, I am particular about it, because I have learned that it will not do to feed young Turkeys anything and everything just as it happens. Feeding meal too soon, feeding uncooked meal, and feeding grain before they are able to digest it, will kill fully one-half of your brood. It is some work to prepare proper food for young Turkeys, but successful Turkey-raising pays so well that one can well afford to do a little extra work. After you get into the way of it you will find that the extra work does not amount to much after all.

Dampness is another cause of the great mortality among young Turkeys. Chills and cramps caused by tramping around in the wet grass puts an end to the lives of a goodly number of the infant Turks. You must keep your young Turkeys dry and comfortable during the first ten or twelve weeks of their lives—or until they are fully feathered and have thrown out the red on their heads. For a few days after they are hatched, whether you raise them with a hen mother or a Turkey mother, confine them to the coop and pen that I have described; then if all appear strong and well, open the pen and give the mother and her brood free range every pleasant day as soon as the sun has dried the dew off the grass. A hen mother will be very apt to bring her brood home at nightfall, but for the first few nights you will have to drive the Turkey mother home; else she will squat down wherever night happens to overtake her, and get up in the morning and drag her brood around through the wet grass long before you think of getting out of bed. After you have driven her home a few nights she will probably come without any urging, especially if you always give her a good meal after she gets into the pen.

Should a sudden shower come up while your young Turkeys are out foraging, turn out and drive them to their coops. If any get chilled and refuse to eat take them to the house, dry and warm them thoroughly, return to the mother, and give all a good feed with plenty of red pepper or ginger mixed in. After they have thrown out the red young Turkeys are hardy, and will stand almost anything.—FANNY FIELD (in *American Prairie Farmer*).

### TOY PIGEONS.

#### ORIENTAL TURBITS OR TURBITEENS.

SOME ten years ago the curiosity of Turbit fanciers was excited by rumours that there existed in the East Turbits of such deep and rich colours that the very best English birds and the soundest in colour would pale beside them. We must confess to having once been somewhat sceptical as to the marvellous superiority of these foreign strains. At last one or two gentlemen, who happened both to have business in the Levant and to be Pigeon fanciers in England, imported a number of these oriental birds. Their colours were indeed startling to our English eyes—deep red with a glow on it resembling burnished copper, intense black with a purple sheen, and yellow as sound as that of a Swallow, yet brighter. But their form and markings? Well, these were not at all what Turbit fanciers hoped for to improve their strains, and at once showed the breed to be practically another sub-variety, which soon were named Turbiteens.

Turbiteens are for the most part plain-headed; some have been imported with peaks, and these are more valuable to English fanciers, though we believe not more prized by their breeders, as having one more point in common with Turbits, and so affording more chance of good results from a cross. They are decidedly coarser than highly bred English Turbits, resembling in size the larger shell-crested Turbits imported from Germany. Their heads are rounder and more like English Owls; their eyes are frequently "broken"—i.e., of two colours curiously divided; their wings marked like Turbits, but their heads also (unfortunately for English fanciers) marked with a small coloured semicircle on the forehead and a large circle on each side of the face. They have feathered feet and hocks, and the latter are generally coloured. We have, too, seen them with coloured tails like some Turbits of old, now talked of but never seen. Their gait is proud, and their heads are generally thrown back. Their breasts are frilled, but we have never seen one with anything like a full double frill. The first importation came from Smyrna, and made, as might be expected, quite a sensation among English fanciers. As is the case with imported Owls, many of these Turbiteens were irregularly marked; but such as had the desired markings clearly defined and were good in head properties, especially if a good pair of them could be matched, commanded high prices. A beautiful pair of Blacks came into the possession of a renowned dealer and

exhibitor, and for a while seldom failed to score victories in the Variety class; but fashion is fickle in Pigeons as in other things, and we have seldom seen them of late in the prize list. After a time another importation followed, from Egypt as we were informed. By this time many Turbit fanciers were desirous of securing them in hopes of infusing their colour into their Turbit strains, for in addition to its brilliancy, report was rife that this colour did not fade, like that of the English Turbits, from exposure to sun and wet. High prices were asked for single birds. We succeeded in securing one, by no means a model bird as a Turbit, but on this account perhaps the more useful. He was a bright red, peak-crested, the only one of his colour we have ever seen with a peak, with little feather on his legs, and to a great extent devoid of the Turbit head markings. We mated him first with a famous Red hen, and subsequently with a Yellow. His produce, always Red, were in the first generation quite as much marked as himself, but mated again with a pure Turbit produced in the second generation birds almost equal to their grand-parent in colour, yet in many cases with no trace of the foreign marking. They have often stood in the prize list; and their colour, and that of others produced in like way by other fanciers is, we believe, far richer and sounder than anything that had before been seen in Turbits.

We must not, however, mislead young fanciers into thinking that all difficulty in the introduction of such alien blood is so soon overcome, or that we can retain all the desired points of each breed and discard the undesirable ones. In the third and fourth generation birds which have but one-eighth or one-sixteenth of Turbit blood often show as much marking as the original cock, and the curious eye of their quaint ancestor sometimes reappears. We have since had other Turbiteens, but the result of crossing them with Turbits has not by any means led to such satisfactory results; indeed, we have generally stamped out all trace of them and destroyed their produce. We remember one in particular, a black-shouldered cock with black tail, which we had much reason to think was picked up in Tangiers; he was small, and had a perfect head and peak, save that the latter was set too low, but all his produce were intensely coarse and lacked all his beauties.

We should add that the original Red bird once paired himself to a Black, and their produce were spangled almost like Satinets. Such has been our experience in Turbiteens—not a very extensive one indeed, but enough to show a young fancier that the experiment of crossing them with Turbits is very interesting, and that it is possible to improve greatly the latter breed by a series of judicious matches. Colour and hardihood we have certainly gained; in occasional foul feathers and wry peaks we have certainly lost. The chief interest of pedigree-breeding lies in selecting the few from the many. If all produce came perfect our pursuit would be almost at an end, and the necessity of rejecting many birds with faults of feather or form only leads us to prize more highly those at length obtained as the reward of patience, in which the chief beauties of two races are really brought together.—C.

### METEOROLOGICAL OBSERVATIONS.

#### CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.						Rain.
1881. May		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
			Dry.	Wet.			Max.	Min.	In sun.	On grass.			
Sun.	1	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.			
Mon.	2	29.635	53.3	47.6	S.E.	49.3	62.4	42.3	115.2	37.4	0.100		
Tues.	3	29.624	53.6	49.6	N.E.	49.6	59.5	46.3	95.4	43.4	0.139		
Wed.	4	29.948	44.6	40.0	N.	49.1	54.3	41.4	106.7	41.3	—		
Thurs.	5	30.064	49.7	45.3	S.E.	47.8	54.4	32.2	85.6	28.7	0.017		
Friday	6	30.202	53.6	49.7	W.	47.6	65.7	40.1	116.0	34.4	—		
Satur.	7	30.265	59.5	54.7	S.W.	49.5	70.0	50.0	123.3	46.3	—		
		30.572	59.7	52.7	N.E.	51.1	70.4	45.3	120.7	39.3	—		
Means.		30.051	53.4	48.5		49.2	62.4	42.5	109.0	38.4	0.256		

#### REMARKS.

- 1st.—Cool and showery; bright sunshine at intervals; wet evening.
- 2nd.—Overcast, but fair till 6 P.M.; rain till 9 P.M.
- 3rd.—Cool and overcast, brighter after 5 P.M.
- 4th.—Cool and showery; fine latter part of the day.
- 5th.—Mild and fine throughout, with bright sunshine.
- 6th.—Much warmer; bright morning; overcast in afternoon; fine evening.
- 7th.—Hazy at first; very fine bright warm day.

A fine bright week with, as is usual in May, a great range of temperature, the average daily range for the week being 19.9°. Sharp white frost on morning of 4th.—G. J. SYMONS.





19th	TH	Reading Horticultural Show.
20th	F	Alexandra Palace Floral Exhibition (two days).
21st	S	
22nd	SUN	5TH SUNDAY AFTER EASTER.
23rd	M	Royal Geographical Society at 8.30 P.M.
24th	TU	Royal Horticultural Society—Fruit and Floral Committees at
25th	W	Royal Botanic Society (First Summer Show). [11 A.M.]

## DOUBLE FLOWERS—A PROTEST.

**W**HENCE the love of flowers, which seems inherent more or less in every human breast? Well, we confess we have just propounded a question which we fear we cannot answer, and will not attempt to do so. It is a love which exists, however, which is a living power for good, and we sincerely pity the man who is incapable of being moved by the quiet unobtrusive beauty of flowers.

The beauty of flowers! How the simple expression transports one from the smoke-bound, brick or stone-pent town, and even the comfortable country home when the snows of winter mantle the earth, to the dewy dell in spring time when the Buttercups dot the emerald grass; the Wood Anemone waves its spotless flowers in response to the zephyrs of May; the Primroses and "Cowslips wan that hang the pensive head," peep out shamefacedly from among their cushions of clustering leaves; and "the wec, modest, crimson-tipped flower"—the Daisy—welcomes the returning summer. Such a picture floats before the writer's vision as he pens these lines. He can almost fancy he hears the exultant shouts of the school-boys and girls—some of them, alas! no more—as the Free Church school of Pitlessie is "skelt" at noon; and he can again recall the sight of the little bands that used to flock—still flock—to Priestfield "den" to gather abundant handfuls of Primroses mingled with other simple wild flowers.

It is said, and there is truth in the assertion, that it is the association of extraneous thoughts with the recurring annual bloom of "old-fashioned" flowers which cause many persons to cling so attachedly to them. While admitting that there is some truth in this, we imagine that it is the simple beauty, unsophisticated beauty, of the flowers themselves which yields the greater power. We admit at once that, while admiring all beautiful flowers, there are some to which we are fondly attached, and to none more so than simple Primroses. "Ah!" some reader may exclaim, "that proves the power of association of ideas." Not so fast, my friend. We have a strong affection for simple forms of Primroses, no matter whence they come, but that affection does not extend to all the tribe. For instance, our heart goes out in tenderness towards the Abyssinian one (*Primula verticillata*), while we love not, and scarcely even admire, the double forms of our own much-loved *Primula veris*. If association of ideas only rules, how comes it that the foreigner with its simplicity charms so much, and the companion of our childhood fails to do so when transformed—we very nearly wrote deformed, into a

wispy multiplicity of petals? Again, we grow as well as we can and we admire the fine "perfected" forms of the Chinese Primrose, but its gaudy beauty fails to awaken half the emotion which the little white *P. viscosa* (commonly called *P. nivalis*) does, and yet both are foreigners alike. The double Chinese or other Primroses we look upon as being very useful for bouquets or cut-flower work generally, or affording an appearance at a dull season; but as for their possessing beauty in its highest type, we emphatically deny it. The highest beauty consists of simplicity and elegance combined with delicacy of colour.

Double flowers in general possess neither simplicity nor elegance. They are mostly ungainly monstrosities; and as for delicacy of colouring, the single flowers nearly possess a monopoly of it. Why is the Primrose, the wild Daisy, or the Buttercup so much admired and cherished, and the Dandelion held in contempt? It surely cannot be that we were less familiar with Dandelions in youth than with Buttercups or Primroses. It cannot be that its peculiar shade of yellow is its condemnation. No, but it is gaudy, it is inelegant, it is a wisp of petals; hence it is a failure, a "hissing and a bye-word"—and—and a model for the florists! Double Daisies are more showy when planted in masses; but will anybody say they are more beautiful individually than the common one? Are the petals (florets) better formed, are they more snowy white, are they so beautifully tinted, are they as simply elegant as the single common ones of the fields and roadsides? Emphatically no. And are double Pelargoniums finer than single ones? Are they half so fine? When cut they stand better, and that is their only recommendation. We are unable to see very much beauty even in single Zonals; but as for the doubles, we would as soon think of getting enthusiastic over a bundle of red rags! They are showy, so is a red cart when newly painted. They are gay, so is a soldier's coat; but who dare call them beautiful?

And double Roses. Are they more beautiful than our wild ones? True, they are, many of them, bigger; but is our sense of the beautiful to be measured by inches? True, they have more petals; but is beauty become a matter of arithmetic? Is a flower with six petals more beautiful than one with five? Is not the flower with the five better every way if the extra petal destroys the beautiful symmetry, which is half the charm in single flowers? And have the florists not by their derangement of this symmetry—which is what has been done in ninety-nine cases out of every hundred where the addition of more petals to a perfectly formed flower has been the object—done a great deal to destroy beauty? I for one think the florists and others who strive to "improve" our flowers have all gone on the wrong track. It is time for them to learn that the mere enlargement of a flower from the size of a shilling to the size of a florin is not of itself improvement, nor yet is the multiplication of petals. Let us have elegance, by which I mean symmetry, purity and delicacy of colouring; but are greater diameters and increased numbers of petals elements of beauty?

Moreover, it is surely not a necessary qualification that flowers should be exactly round. A waggon wheel is surely a poor model for an improver to aim at, and yet something equivalent is kept in view. Flowers assume many shapes, and yet this very variety in form is one of the charms of plants and flowers. Yet with all the hubbub the florists make about

securing variety, they are doing their best to destroy it. Petals must be broadened, smoothed, narrowed, lengthened, shortened, till something as near the shape of a penny in the case of single flowers, or the half of a Turnip in the case of double flowers, is gained. We are treated to variety in colour, but as to form—the florists sigh because they have not yet been able to destroy it. And yet Nature is prodigal in her gifts even in this direction. The greatest charm of our wild flowers is their variety of form; the greatest want in improved flowers is the want of diversity of form. Among all the productions of the florist where are to be found the like of the Orchids? And yet these are, almost every one of them, wild flowers. Purity of colouring, delicacy of colouring, wealth of colouring, wealth of form—these characterise the Orchids. Why cannot our florists learn something from such as these? Even here, too, the florist has stepped in; and although the “improving” of form by means of raising seedlings is out of the question, he is attempting something by means of selection. The nearer the flowers of *Odontoglossum Alexandræ* approach the circular form the more value is attached to them. The nearer flowers approach to an artificial model and become thereby more artificial, the more beautiful they are considered! The sooner something better is substituted for this false taste the better. We have said false taste, but the fact is, it is bad taste, and we do not long for double Orchids.

To-day we stood by a tiny stream in a sequestered spot and gazed on clumps of Buttercups a yard across, perfectly covered with gleaming golden flowers. To-day we waded through a bed of Wood Anemones more than an acre in extent, and we sat by a mossy bank begemmed with modest Primroses, experiencing something like what the first dwellers in Eden may be supposed to have felt when ushered into existence, endowed with power to drink in all the glad joy prepared for them, not the least of which must have been a profusion of wild flowers. On the table before us a few of these Buttercups, Anemones, Daisies, and Primroses are side by side with fine-laced Polyanthus, garden Anemones, and garden Daisies, and we unhesitatingly say that the simple wild flowers are more lovely by far than even our favourite garden varieties. We would like to have them all, but we love the wild ones best.

Hard by the bed of Anemones referred to is another equally large of the wild Hyacinth, which will not be in bloom for some time yet; but when it does bloom the effect must be glorious. We have strips of plantations round the little place here where we serve, and we would fain carpet them with the sweet denizens of the wild woods, and shall be glad of any instructions whereby we may be enabled to succeed in establishing them. We think we shall have no difficulty in getting permission to dig up any number of Anemone roots and Hyacinth bulbs, and these we intend dibbling-in in clumps, say in October, in a shady plantation which has been kept free of grass by poultry hitherto, and will be now by the hoe. We intend to make trenches with bottoms puddled with clay—our soil is open below at the particular spot where we intend doing this—and filled with loam for growing clumps of Buttercups, the roots of which in their native spots are always bathed in water. Has anyone ever tried to cultivate these flowers, and if so will they please state by what means they succeeded?

I see that “WYLD SAVAGE” and others are taking up the matter. I think what they have said must have met responses in every breast where a love of wild flowers dwells. It is time, and more than time, that our native Flora received the attention it deserves. Let us all help on the good work.—SINGLE-HANDED.

“SWEET NANCY.”—Previous to the year 1844 there had been from “time immemorial” a kind of flower market associated with a swarm of humble florists and tiny nursery gardens in the Bethnal Green portion of the Cambridge Heath Road. “Sweet Nancy” was always there in the spring time, and her companions were Sweet William, Narcissus, Ragged Robin, and other gay sparks. Everybody knows Sweet Nan by other names, such as London Pride, *Saxifraga umbrosa*, &c., &c. There is a lot of it in the front gardens of smallish houses in the suburbs of Manchester, where I have heard it called Sweet Nancy, but with

different vowel sounds to those that were used in Bethnal Green.—SHIRLEY HIBBERD.

[*Saxifraga umbrosa*, or London Pride, is called None-so-Pretty, Pretty Nancy, and Sweet Nancy in different localities.—ED.]

#### SEASONABLE NOTES ON POTATOES.

POTATO cultivators throughout the country will now be watching their crops eagerly to try and form an idea of their prospects for 1881. I have never seen the Potatoes about here look better at this time of year than they are now; late varieties are growing strongly, and earlier kinds are very robust.

In many instances it is the common practice to plant the Potato crop and allow it to take its chance without any attention whatever until the tubers are ready for digging. Sometimes earthing-up is done early, other times late, and often not at all. The plants grow under all these conditions, but the improvement of the crop must be very uncertain. Potatoes are often unavoidably planted in heavy soil; this may be in good working condition at the time they are planted, but after much rain it becomes close and hard on the surface. Soil of the kind requires to be stirred frequently from the time the growths are seen above ground until the crop is well advanced. An ordinary Dutch hoe is little good. A steel fork should be used, or an implement the shape of a drag hoe, but with three or four prongs, is also useful for loosening stiff surfaces; it is worked in the same fashion as the drag hoe, and is excellent amongst Potatoes. I employ it amongst all ours as soon as we can see the plants and again before they are earthed up. Where the ground was not properly manured before the tubers were planted the deficiency should be made good before earthing up. A little potash will be found the best of all manures for Potatoes, failing this a mixture of salt and soot will do much good. I place a handful round each plant, covering a strip about 8 inches or 10 inches wide all round the plant; this is done just before earthing up, and the soil then covers the dressing. Potatoes treated in this way will always be very free from worms, and these are very troublesome and destructive in some soils.

The object of earthing up Potatoes is at all times to cover the surface tubers and prevent them becoming green. Some kinds form their roots deeper than others. Schoolmaster is one of the surface-rooting varieties, and kinds like this may sometimes require to be earthed up twice. When this is necessary the first earthing may be done when the stems are 8 or 10 inches high, and again before the soil between the rows is covered by the stems and leaves. In heavy soils this second earthing does much good, as Potatoes are just as much benefited by stirring the soil amongst them as other crops. At the present time our late Potatoes, now only a few inches high, are being subjected to surface cultivation, as the soil is being loosened between them; and in another ten days or so they will have their first earthing-up, and in another fortnight or so after that they will be finally earthed.

To secure large tubers some growers reduce all the stems from each set to two, but this very often reduces the number of the tubers too; and although too much top growth is an evil, I think four stems from each set give the best crop. But strong stems are not all that is wanted to produce a good crop: sometimes those with the greatest amount of top growth have the fewest tubers. Magnum Bonum is one of the kinds which makes enormous haulm; but I cannot understand the advantage of it, as the crop, although good and free from disease, is not heavier than that of others with a few short stems. Apart from heavy growth being no advantage it may even be injurious, as it is generally understood that the roots are not so fine when excluded from the air as those more exposed. I am thinking about restricting the top growth of some of our Potatoes this year by taking the points out of the stems when they have grown a reasonable height. I have done this before now in a small way with no deterioration of the crop, and I think it might be generally applied to some varieties. More air will be admitted to the soil, and the benefit will be great where the plan of planting winter greens between the Potatoes is carried out. I have heard cultivators say their Potato stems were taller than themselves, but this did not prove much; and probably if the growth had been restricted to 2 feet or so in a few rows they might have been astonished to find that these surpassed the giants in size, number, and quality of the tuber.

If Potatoes will bear restricting generally there would be great gain by it, as many kinds might be grown much closer than they are if the top growth had not to be taken into consideration. This would be an interesting experiment for many to try: Supposing a number of rows of each kind are growing together, stop the stems of one row when they are 12 inches high or so, and allow the others to grow in the old way. Judging from my expe-

rience the experimental row would not be the last on which the operation would be tried.—J. MUIR.

### THREE HANDSOME FLOWERING TREES.

ON visiting a friend's garden a few days since I greatly admired some flowering trees, which, it appears to me, are not sufficiently well known. Everyone that saw them in flower expressed the highest admiration of them. One was *Pyrus baccata*, with pure white flowers over an inch in diameter and deliciously perfumed. The tree was 18 feet high and probably as much through, covered with bloom. *P. spectabilis* is a good companion to the former; the flowers are rosy pink, and have a tendency to come semi-double. The third is the double-flowered Cherry, *Cerasus japonica flore-pleno*, pure white with flowers an inch across, very double, and reminding one of small Roses. If these three trees were planted judiciously in borders and shrubberies they would produce a very pleasing effect. Why they are not more extensively planted it is difficult to imagine. They grow quickly, and if only a limited space can be spared for them they can be readily kept in bounds by annual pruning, and lifting and replanting the trees occasionally.—W. K.

### OLD AND NEW PEACH TREE TRAINING.

I WOULD like to thank "SINGLE-HANDED" for his information concerning old authors who have advocated "extension" in Peach culture. I am pleased to note any evidence, new or old, in favour of a system that I believe in. Whatever may have been written on the subject, however, in times past, it seems manifest from much that is being written now that our knowledge of the system has been almost lost. We have but to turn to the revised edition of the "Gardeners' Assistant," published in 1878, and in which some additional illustrations on Peach training and pruning are introduced by its reviser, Mr. Moore, one of the Editors of the *Gardeners' Chronicle*, to see the kind of pruning and training advocated by such writers who, whatever their position and ability may be, certainly claim to stand in the forefront of modern horticulturists. The illustrations on Peach pruning in the new edition are the worst examples of mutilation it is possible to conceive. Fig. 280, page 453, represents a succession Peach shoot, which the pruner is shown must be cut clean off at the third bud from the base, leaving the shoot perhaps 3 inches at the most in length. Fig. 281 shows a branch with two succession shoots, in which the same method is more carefully delineated; and in the same page we are informed that Peach pruning "is reduced to three very simple rules:—1st, Shortening the intended bearing shoot at the winter pruning; 2nd, Training a succession shoot in summer; 3rd, The removal of the shoots that have borne fruit, except such of them as are leading shoots or branches." From what source the reviser of the "Gardeners' Assistant" got his examples is not stated, but in all my experience I never saw the like, nor never met anybody who did. There can be no mistake about the meaning of the author. The figures are not simple diagrams, but carefully executed illustrations of *bonâ-fide* Peach shoots, showing both fruit and leaf buds, and the lines for the cut by the knife at the winter pruning are drawn above the third bud from the base of the shoot in each case. Following these directions the pruner would cut about 9 inches from a well-ripened Peach shoot 12 inches long, and longer shoots in proportion; and this practice is advocated for general Peach culture on walls and trellises, but which fortunately no experienced men follow, though no doubt many beginners and readers of the "Assistant" have attempted to put in practice and failed, to their own and their employers' serious disadvantage. It seems to me to be time some one was lifting a voice against such mutilation of our fruit trees.

Whatever objections may be entertained to the system of training advocated by me, the following facts will, I daresay, not be unacceptable to those of your readers who are interested in fruit culture. One of the severest and most enlightened criticisms that have been passed upon my practice was that others might fail if I succeeded; but I hope I am not prohibited from telling what I have done, or that cultivators are deterred from following me if they choose to do so. From four young Peaches and Nectarines planted here in 1878, and hardly larger than maidens, I gathered in 1879 about eighteen dozen good fruit, as the trees bore from four to five dozen fruit each. In 1880 the same trees bore from nine to thirteen dozen, and at the present time they have each upon them from twelve to sixteen or seventeen dozen about the stoning period. I shall probably thin them down yet considerably; but if they do as well as they promise at present and have done before, I shall have gathered in less than four years from

the date of planting between ninety and a hundred dozen fruit or thereabouts, striking the average as near as possible, and speaking within bounds. Probably Mr. Pettigrew and others who have been so long ahead of me in the matter may have equalled or excelled this, and if they have I should be glad to be furnished with particulars. So far these trees are pushing strongly near the trunk, and I anticipate no difficulty in keeping the trees furnished with wood.

Kindly permit me also to correct an error fallen into by your reviewer in his allusion to the Peach tree at Wortley. The tree in question was planted in 1866, and was 15 feet across at the end of the third year. It was confined to this space till December, 1878, and since then it has more than doubled its diameter. The time taken is really five years and a little while longer to reach the top of the house. The tree is to be seen, and the evidences of its removal too, and what is stated can be proved. These statements will be found more than corroborated, and reference to page 500 of the "Gardener" for 1870, where the same trees are described at that time.—J. SIMPSON, *Wortley*.

[It will not be needful for our reviewer to reply to this communication, as Mr. Simpson's statements as to the size and character of the tree have not been questioned. The yield of the young trees alluded to is excellent.—ED.]

### ADONISES.

A SMALL group of plants, containing both annual and perennial kinds, with showy Anemone-like flowers. Two annual species are natives of England, a fact which too often leads to even a handsome plant being turned out of the garden. In the present case, however, they are really deserving a place in the shrubbery border. Some of the species are very nearly allied, and it is not necessary to grow all those described in the following notes where space is limited, yet they are well worth attention where they can be accommodated. The perennial kinds should be planted in situations where they may remain undisturbed for some years, for they do not like their roots broken. Any good garden soil suits these plants, but if it should be stiff and heavy they will not thrive freely, as they decidedly prefer a light, rich, and retentive compost. The species are all confined to Europe and Asia, and are perfectly hardy.

*A. æstivalis*.—An annual species, and a weed in common parlance, but in the month of May travellers crossing Salisbury Plain often see it in fine condition. It forms a much-branched compact plant, attaining a height of about 2 feet. The leaves are very finely divided and deep green. Flowers bright scarlet and very showy. It blooms during May and June. Seeds should be sown in the borders in September. Britain.

*A. autumnalis*.—This is also an annual plant, which, as its name implies, flowers at a different time of year. It grows about 1 foot high, and is distinguished from the preceding by the length of its sepals, which do not exceed the calyx, whilst in the spring-flowering plant they are much longer; the colour rich crimson, approaching to black towards the base. It blooms in July, August, and September, and is sometimes known by the name of "Red Morocco." Britain.

*A. pyrenaica*.—A perennial plant which has been neglected—like all its relatives, indeed—but this has been cast aside on the plea of its being only a taller-growing *A. vernalis*. It may be described briefly as a gigantic form of that plant; but it must be borne in mind that the flowers also are larger, whilst, instead of being solitary, they are produced three to five on each stem. The leaves are much divided into narrow deep green segments; they appear larger than its near ally through having long footstalks, whilst the bright golden yellow Poppy-like flowers are often 4 inches across. It attains a height of about 18 inches, and flowers in July. Pyrenees.

*A. vernalis*.—This plant certainly is one of our very finest spring flowers, but can only be seen in perfection where the soil is congenial and it has been allowed to stand undisturbed for some years. Then, indeed, it presents a picture which would defy an artist to render. The leaves are sessile, much divided into narrow, linear, deep green segments. Flowers terminal, solitary, about 2 to 3 inches in diameter, Poppy-like, and rich bright yellow. It attains a height of about 10 to 15 inches, seldom, however, exceeding a foot. If the season is genial it commences flowering in the month of March. Mountainous parts of Europe.—H.

GRUBS ON ROSES.—"Look after the grubs," says "D., Deal," on page 372; "now is the time to make the onslaught." I always mind what the parson says; so I have spent the evening while



light served in looking over the Rose bushes in my little garden, pouncing upon wriggling caterpillars, squashing fat brown grubs in the leaves, and digging out others from the stem. I did not number the slain and will not send you fancy figures, but I killed a host. I thought I was acquainted with all the enemies of the Rose, but an unknown stranger has made his appearance in my garden. White spots appear on the leaves, the leaf being eaten away on the under side and only the upper cuticle left. On turning up the leaf a small grub a quarter of an inch long appears holding on by its head, its body encased in a brown envelope projecting from the leaf at right angles. Can any of your readers tell me the name of the "little beggar?"—EDWARD LESTER.

### BROCCOLI ON FIRM GROUND.

SOME twelve months ago there appeared in this Journal an excellent article from the pen of Mr. Wright, about planting Broccoli on hard ground. This I had never practised nor seen carried out in previous years, and I was therefore anxious to give what I thought a good system a fair trial, not merely for the sake of testing the advice there given, but for the purpose of growing the plants more solid and hardy, so as to reduce the death rate amongst my plants if possible, as it was enormous during the winter of 1879 and 1880. The system referred to appeared to me to be the most likely by which that end could be achieved, and the result proved very satisfactory. Two portions of ground were selected that had the previous year being occupied with late Peas and Beans, and the ground in consequence was firm. A moderate dressing of manure was applied and just forked in below the surface, so as to allow of small drills being drawn about 3 inches deep for the young plants when ready (a system I generally carry out in planting the Brassicas). The seed was sown in an open position about the middle of April, and the seedlings produced grew slowly, but sturdily. Cattell's Eclipse and Leamington were the two kinds selected, and when between 2 and 3 inches high they were finally planted upon the firm ground in rows 2 feet 6 inches apart, and the same distance from plant to plant. At first growth was slow, but when well established they soon covered the space allotted them. In autumn the stems were thick and hard, and the plants dwarf and sturdy; all were lifted, and their heads laid to the north on the same portion of ground. Of the former eight out of every ten passed the winter safely, while about half the latter were left alive; both are now producing fine heads. Late Qucen, recommended by some as the hardiest of all Broccoli, died with me treated in every respect the same as the preceding varieties. Those grown upon deeply dug rich soil, including the above, Carters' Champion, and Harrison's Late White, all succumbed to the effects of the severe weather; the thermometer registering on one occasion as low a temperature as zero.—WM. BARDNEY.

### ROYAL HORTICULTURAL SOCIETY.

OWING to the report of the Scientific Committee and the Rev. G. Henslow's lecture not reaching us sufficiently early last week, we were compelled to defer their publication until the present issue.

**SCIENTIFIC COMMITTEE.**—*Sarracenia*.—Mr. Smith made some additional remarks on the petals of this plant, having come to the conclusion that they rose when in a saturated atmosphere, in consequence of a strong light being thrown upon them. He exhibited a drawing to show how the uplifting of the petals would facilitate the ingress and egress of insects.

**The Influence of the Electric Light on Plants.**—Mr. Buchanan exhibited Wheat plants sown on December 17th in the open air and subjected to the electric light. They came up slowly and were covered with snow. Several plants perished, but the remainder have grown very rapidly during the last five weeks. They were vigorous and green. They were about 15 feet from the light, which shone upon them every and all night. He also exhibited a Melon planted on November 6th. The light, however, was at too great a distance; hence the plant grew very weakly. When, however, the light was subsequently brought nearer in January last it made rapid progress. The question was raised as to the flavour, but Mr. Buchanan observed that no opportunity as yet had occurred of making comparative experiments with those grown in sunlight. A vote of thanks was given unanimously to Mr. Buchanan for his interesting observations.

**Elisena.**—Col. Clarke exhibited a hybrid between *E. longipetala* and *Ismene callisthena*, and which appeared to be identical with *I. deflexa*. The uppermost stamens were sharply bent down and across the tube of the perianth, as in *Ismene*, but the lower were declinate, as in *Elisena*. He also exhibited *Tulipa undulatifolia* and others, as well as *Cyrtanthus McOwani*.

**Abies Nordmanniana.**—Boughs cut by the frost were exhibited by Dr. Masters. It appears that they had perished through the thaw rather than the frost, for they had been bowed down by snow which melted, and were then subjected to a hot sun. The violence of the

contrast in temperatures caused their death. Col. Clarke observed that Silver Firs and Norway Spruces had lost their leaders during the late winter, while Mr. Wilson remarked that *Cupressus Lawsoniana* had also been killed.

**Thorns.**—Dr. Masters recorded a remarkable instance of a Hawthorn around which a wire had been fixed to support a Rose tree. The wire had completely cut through the tree in ten years, but the wound had healed up, so that the tree had been quite uninjured. He also mentioned the case of a Hawthorn whose stem had been split for about a yard in length, the whole of the length had spontaneously reunited.

Mr. E. Davies forwarded examples of Primroses with virescent corollas from Swansea; Pansy with blue posterior petals. Mr. Noble exhibited a seedling with remarkable petals, apparently indicating a new departure in the distribution of colour. It was an accidental seedling.

Mr. Buchanan mentioned the case of a Crab tree caught within the fork of a Beech and completely embedded in it. The effect appeared to be that the Crab tree blossomed much earlier than others in the neighbourhood.

Mr. Henslow exhibited Daffodils in which the membranous spathe had dehiscent in a circumscissile manner, entirely cutting off the upper part. He also showed "Jack in the Green" Primroses from a plant found wild in Ireland. He exhibited some Willow catkins forwarded by Mr. Marshall of Ely, who had observed that those from monandrous Willows always flowered from the apex downwards, whereas catkins from the triandrous Willows flowered from the base upwards.

**LECTURE.**—The Rev. G. Henslow took the tribe "Pomeæ" of the Rose family (Rosaceæ) as the subject of his remarks, as Mr. Barron exhibited several branches of Apple trees illustrating considerable varieties of form, size, colour, &c., in their blossoms. He described the flower of the Apple, and pointed out the affinities with the Plum, Blackberry, Strawberry, and Rose, as well as the differences, especially in the characters of their fruits respectively, which separated them. He dwelt upon the so-called "calyx-tube," or rather "receptacular-tube," and showed how it was characteristic of the whole family under modified forms, constituting the thin tube of the Cherry, the flat dish-like process in the Blackberry and Strawberry, the haw of the Rose, and the fleshy part of the fruit of the Apple, Pear, &c.

As the season of the year has arrived when frosts prove most disastrous to fruit trees, the lecturer proceeded to make some remarks upon it. He first observed the importance of understanding the external conditions which were favourable or otherwise to the acquisition of hardiness by plants. One of the most important facts is, that in low-lying situations (if away from any large body of water, which might act as a radiator of heat and so moderate the temperature in its neighbourhood) frost almost invariably proved more destructive to vegetation than on higher and more exposed situations. That such was the case had long been observed. Mr. Henslow ventured to offer the following explanation:—In the first place valleys accumulate heat, and being naturally moist vegetation is earlier, more stimulated, and later in drawing its period of activity to a close; hence there would be a less capability of ripening wood and hardening the constitution in autumn. It is then in a condition likely to suffer. On the other hand, when frosts occur the atmosphere is clear and comparatively free from moisture, so that radiation can proceed rapidly and without interruption. Now, since moisture is slow to acquire heat and equally slow in parting with it, from this fact alone one would be inclined to infer that the temperature of valleys ought to be slower in reaching the freezing point than that of higher ground. But evaporation from a moist surface would take place, especially under just those atmospheric conditions which favour frost; and it is this (the lecturer suggested) which was probably the cause of the increased lowering of temperature, since to evaporate water a considerable amount of heat is required, as may readily be recognised by wetting the finger and allowing it to dry by evaporation.

The chief cause, however, of valleys being colder than the higher situations at night was probably that, although radiation takes place from both, yet in consequence of the air on higher ground being more agitated than that in the valleys, no portion of it rests long enough in one place to become much colder than the general mass of the atmosphere of the same height. Moreover, the chilled air on the hills being heavier, slides down into the valley, making room for the arrival of a fresh supply of warmer air. With regard to spring frosts, what usually caused them to be so disastrous was a previous condition of wet, as so often occurs in April. When vegetation is started the tissues are loaded with moving sap; then if a frost comes, and a bright hot day follows, the sudden transitions of temperature prove disastrous. If the frozen trees be syringed early in the morning with cold water, so as to raise their temperature slightly above the freezing point, the intense heat of a May sun may be powerless to injure the tree.

The presence of a surface of water near fruit trees has been suggested as a preventive of frost, just as pails of water are sometimes placed in storerooms, which are said to protect Apples, Potatoes, &c., from being frostbitten, while the water in the pail itself is frozen. If it be correct, the interpretation would seem to be that in order for water to freeze it must part with a relatively large amount of heat; this is distributed to the atmosphere about it, and its temperature will be obviously raised. The lecturer suggested that fruit-growers should experiment on this point by placing pails or troughs

at the foot of the walls whereon Peaches, &c., grew, leaving certain other trees in the same situation without the water, so as to test the truth of the assertion.

Besides adopting any methods which may keep the air above freezing point, protection against radiation is especially to be considered. It is astonishing what a very slight protection will sometimes suffice. Various fruit trees in which the petals were more incurved than others will thereby protect the pistil from injury; while Cherries, in which the withered calyx-tube was observed still suspended on the summit of the ovary before falling off, were thereby protected, while others from which it had fallen were cut on the same occasion.

Such were some of Nature's hints as to what was requisite to protect the blossoms from the injury of frost.

#### ABOUT PEACH TREES.

THERE are certain questions about which there is hardly room for discussion. It may, I think, be taken for granted that during all times the grower with few trees and much space would extend the branches. But about pruning and cropping, do gardeners practise what they preach? I have seldom seen them do so, but frequently have seen them with crops which evidenced that they considered their prestige depended thereon, and others with bearing wood tied in as though they contemplated during the winter months turning basket makers! Let me impress upon young gardeners the adoption of the following plan: Say a young tree with six branches is at hand. Give the bottom pair just a gentle rise and divide the rest equally, with the exception of giving to the top pair two spaces. When disbudding remove all the back shoots and all the bottom shoots, and remove those in the front with the exception of a few, which pinch short to form fruit spurs. With a sunless season the fruit buds of these latter, requiring less ripening, may save a crop, and they clothe the tree. On the top of the branches leave shoots for bearing about 18 inches apart. Thus you will have a fan-shaped tree formed of "wings," and you will never be troubled whilst laying in your wood with one lateral running into the other; so you will have a tree that will please the eye and secure fruit with ordinary attention. Of course I do not offer this as any new plan, but I do offer it as a plan that deserves attention, and yet a plan that is very far from being practised generally by professional gardeners.—JOSEPH WITHERSPOON.

#### RHODODENDRON CAUCASICUM PICTUM.

ON the 6th of April we lifted a large plant of the above from the open border and placed it in the plant stove for cutting. On the 13th, exactly a week after the operation, sixteen fine heads of open flowers were cut from the plant, and the evening of that day the specimen was a mass of beautiful pink flowers. On the 14th 136 open trusses were cut, leaving about sixty remaining, counting buds as well. This is a first-rate forcing variety. We have grown it for many years, having it in flower frequently about the beginning of the year for conservatory work, when it lasts a long time in flower. I do not think its use for forcing is as well known as it deserves to be. It is freely used in this locality (Cheshire) under the name here given, and also there is a fine white variety which we have not grown. A plant of a red kind was lifted here before the 6th of April and put in the early vinery, and it is not yet (May 7th) fully in flower. But most people who force plants know the great difference of Rhododendrons in this respect. *R. c. pictum* is now just coming into flower in the borders, and is very pretty; only for this work it is risky to grow it too largely, as it is sometimes completely cut down by late frosts when it is in full flower.—R. MACKELLAR.

#### CARPET BEDDING.

AFTER all that has been written against this mode of garden decoration it has yet probably more admirers than any other, judging by the thousands who enjoy it in the London parks, and the long pilgrimages that are made to them for securing the latest patterns. The system is also largely practised on the lawns and terraces of private gardens, as we know by the inquiries we receive on the subject. The present being the time for arranging the beds, we submit the first of a few examples designed by Mr. Graham of Hampton Court, which are quite different from any he has hitherto produced. The arrangement for a whole ground-work of the attractive dark green hardy plant, *Herniaria glabra*, will considerably reduce the expense of planting such a bed. The margin, No. 11, had better be raised about 5 inches above the grass, slightly bevelled, and planted with *Echeveria*, *Sedum glaucum*, or both together, to keep up the soil and improve the appearance of the bed. This design can be planted in many different ways

to suit the taste or variety of plants at command, and with certain modifications that will suggest themselves the character of the design may be adapted to beds different in form to the one repre-

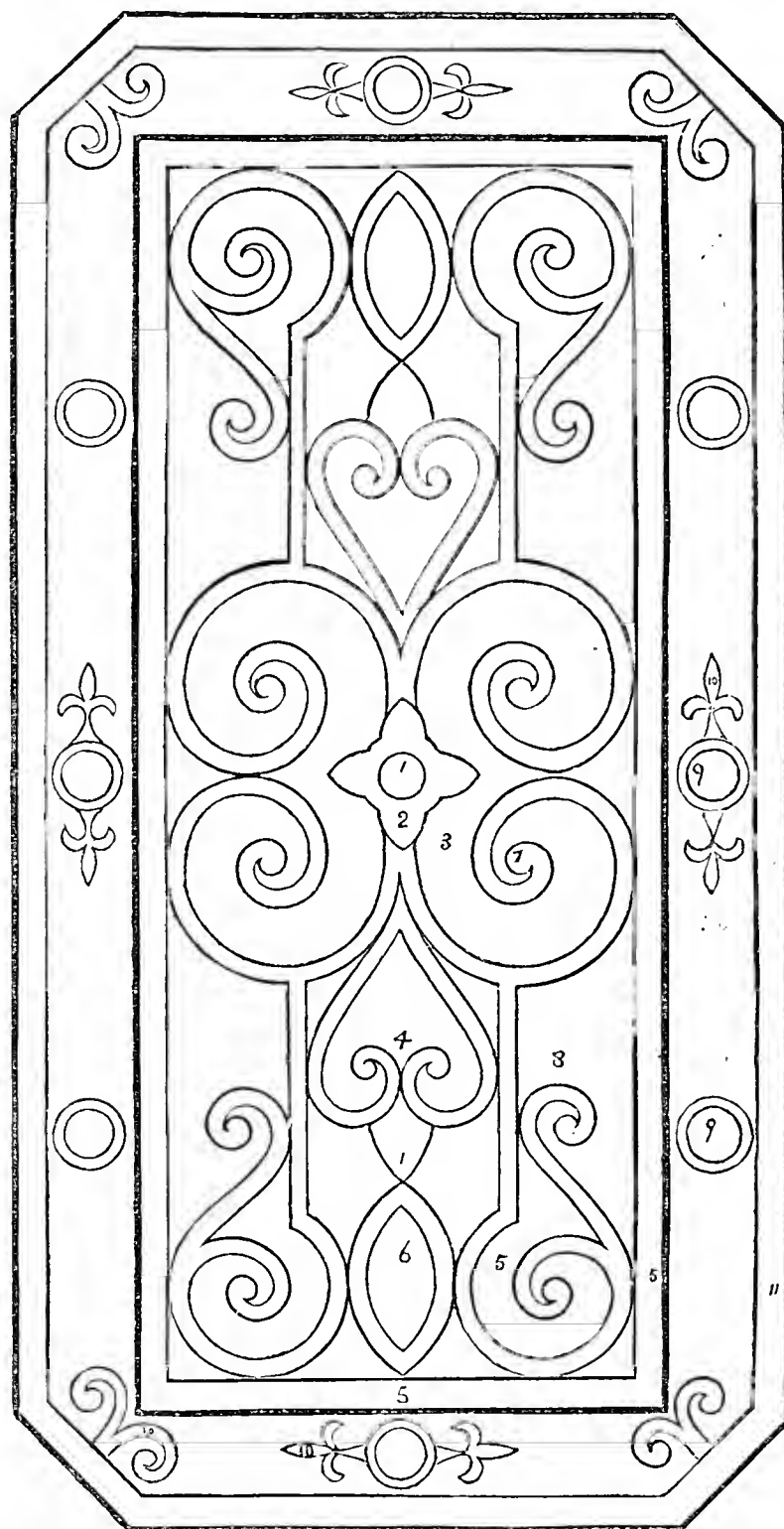


Fig. 86.

sented. The following is a mode of planting suitable for the design submitted:—

1. *Echeveria metallica*, or any other suitable specimen plant.
2. *Alternanthera amoena*.
3. " *paronychioides major*.
4. *Pachyphytum bracteosum* or *Kleinia repens*.
5. *Alternanthera paronychioides*.
6. *Sempervivum montanum*.
7. *Mesembryanthemum cordifolium variegatum*.
8. *Herniaria glabra*.
9. *Sempervivum tabulaforme*, or plant of a similar character.
10. *Alternanthera* of any kind.
11. *Echeveria secunda glauca* interspersed with *Sedum glaucum*.

JOTTINGS FROM THE WEST.—I was very much pleased to see "VERNA" alluding to our plants of the hedgerows, copses, &c. I am particularly partial to our British "weeds," as gardeners too frequently call them. No matter how severe our winters, they are always succeeded by charming spring flowers, such as *Petasites fragrans*, three species of *Potentilla*, one or two varieties of *Viola*, three species of *Ranunculi*, the Daisy, Primrose, wild Hyacinth, the Hawthorn and Blackthorn, and a great many

more. Our crops of early Potatoes are promising. Those at Scilly are quite three weeks behind their usual time this year, owing to the severe frosts in early spring. An excellent sample was produced out of doors at Galval, which were dug about three weeks ago—remarkably early. Hyacinths and Tulips have been finer this year than for many previous seasons, owing, I presume, partly to the excellent bulbs imported last year.—W. ROBERTS, *Penzance*.



THE Royal Horticultural and Agricultural Society of Antwerp announce that on the occasion of the fiftieth anniversary of the Independence of Belgium an INTERNATIONAL EXHIBITION will be held in Antwerp on the 14th, 15th, and 16th of August of the present year. The schedule enumerates 142 classes in eight divisions devoted to the following exhibits:—First, new plants, ten classes; second, flowering plants, sixty classes; third, fine-foilage plants, forty classes; fourth, specimen plants, fourteen classes; fifth, bouquets, &c., five classes; sixth, fruits and vegetables, nine classes; seventh, pictures of plants, fruits, or flowers; and eighth, garden instruments. The most important prizes are the following:—The King's large gold medal offered for a group of plants; the Queen's large gold medal for the best collection of Orchids; a gold medal, value 500 francs, offered by Le Fédération des Sociétés d'Horticulture de Belgique for a group of ornamental plants and specimens; with gold medals of honour, value each 200 francs, offered by M. le Baron de Caters, President of the Society, by M. Le Baron Osy de Wycken, Vice-President of the Society, and by the members of the Council. Many other gold medals of similar value are also offered in various classes, and judging by the provision made a highly satisfactory exhibition should be the result. M. Charles Van der Linden is the Secretary of the Society.

— It is announced that the INTERNATIONAL POTATO EXHIBITION for the present year will be held on September the 20th and 21st. The schedule enumerates nineteen classes, in the majority of which the prizes have been considerably increased in value, and many additional prizes are offered. For instance, in eight classes four prizes are now offered in which there were only three last year. Class C, for twelve dishes, is especially devoted to English Potatoes; Class D, for nine dishes, being reserved for American varieties, and several other alterations are notable. Four classes are devoted to new Potatoes, accompanied with the following stipulation, that "as the granting of certificates will be conditional upon the approval by the Judges of the seedlings when cooked, a dish of not less than six additional tubers of the same variety must be provided for the purpose."

— THE extensive collection of CYCADS AT KEW is now in admirable condition, and we have never seen the plants growing so vigorously as they are at the present time. The majority of the specimens are arranged to form a large group at the south end of the Palm house, and the numerous crowns of light green leaves now arising contrast strikingly with the older darker leaves. In some instances over thirty leaves are being produced from one crown. Several handsome specimens of *Encephalartos Frederici Gulielmi* are particularly noteworthy, and *Dion edule* with many others are similarly vigorous. Admirers of this class of plants would do well to visit the Kew collection during the present month.

— A CORRESPONDENT, "RUS," desires to recommend SWEET OIL AS AN INSECTICIDE, as he finds "it kills both bug and scale,

and does not injure the young shoots of plants." We advise that it be applied with caution, as we apprehend its frequent use would be injurious to vegetation.

— THERE is now a beautiful display of ORCHIDS AT WIMBLEDON HOUSE, and the collection has been formed and the plants grown in a remarkably short space of time. Particularly noteworthy are some excellent forms of *Odontoglossum Alexandrae* and *O. Roezlii*, also several *Dendrobiums*, including *D. Devonianum*, *D. tortile*, with some fine examples of *D. primulinum* on the eve of expansion. The growths made in small pots and saucers are wonderful, and they show beyond doubt that Orchids may easily be, as they often are, overpotted. In the same small pots *Pleiones* are growing luxuriantly, as also are *Odontoglossum vexillarium* and *Phalaenopsids*. *Aerides Fieldingi* is producing fine spikes; indeed the entire collection is in most excellent order. Pitcher-plants, too, are making great progress, and many valuable specimens are established. The Vines, about fifty years old, in the same garden have never looked so well as at present, and they show what can be effected by a judicious system of renovation. The Peach trees and crops grown in the manner described by Mr. Pettigrew on page 327 are remarkably fine, and could not be surpassed in appearance nor excelled in productiveness by trees grown on the extension form pure and simple.

— IN the outside department of the same establishment the UNPRUNED PEAR TREES are such as would gladden the eyes of Mr. Simpson. For some years the pruning of the trees has been limited to the thinning-out of superfluous branches, no shortening having been done; indeed several trees have not been touched with the knife since they were quite young. Many of the Pears are now about 15 feet high and half as much in diameter at the base, and are handsome well-formed pyramids. The Apples of bush form are such as it would be difficult to find fault with, as they are of agreeable form and laden with blossom. They have borne good crops during the last few years, and this year a full yield is expected. In passing through the gardens so well stocked, and the pleasure grounds so diversified and beautiful, the visitor cannot suppress a feeling of regret that this picturesque estate is not long expected to remain in its present form. It will, however, afford scope for the erection of many attractive if smaller houses after the proprietor, Sir Henry Peek, Bart., has removed to his new mansion and estate in Devonshire.

— WE are sorry to learn that the frost on Thursday morning last destroyed a great portion of the blossom on the Apples at Chiswick, the smaller trees most severely; even the unexpanded flowers were nipped, and Pears were slightly injured.

— WE understand that a STRAWBERRY FETE is proposed to be held in the Royal Horticultural Society's Gardens at Chiswick this year, and that a circular is being sent to the Fellows of the Society on this subject.

— IN one of the houses at the Royal Botanic Society's Gardens, Regent's Park, a plant of the peculiar *ARISTOLOCHIA GOLDIEANA*, which was figured in this Journal, vol. xxxviii, page 456, is now bearing several flower buds; so there is a possibility that lovers of the curious forms of vegetation may shortly have an opportunity of seeing the extraordinary flowers of Goldie's Birthwort.

— WRITING from the West of England a correspondent states, "The bloom on all kinds of FRUIT TREES has been unusually abundant this season. Unfortunately on the night of the 10th the temperature fell to 25°. This severe frost has much injured the Apple blossom both expanded and in a bud state, and has also affected the crops of Gooseberries, Red and Black Currants. The majority of the Pears, Plums, and Cherries had set good crops, and are apparently uninjured. All the early Straw-



berry bloom have now been twice injured, and the Potatoes are cut to the ground."

— LAST week, observes a daily contemporary, the King and Queen of Belgium gave a GARDEN PARTY AT THE PALACE OF LAEKEN, BRUSSELS, the first ever given in Belgium. The newly constructed winter garden was opened on the occasion. There are magnificent conservatories for Palms, Azaleas, and exotics of every kind, and connected with the apartments of the Palace by an underground gallery adorned with plants. The diplomatic body and the *élite* of Brussels society were present. The *fête* was splendid and favoured by the weather.

— WE have pleasure in publishing the following letter in reference to the GARDENERS' ROYAL BENEVOLENT INSTITUTION—

"I have had numerous inquiries as to the way in which the simultaneous collection on the 30th July is to be carried out. Will you kindly inform your numerous readers that a collecting card will be sent on or about the 22nd July to every gardener whose address I can find? but as there must be many whose names and addresses are not in the horticultural directories, I shall be greatly obliged to any gardener whose name is not in those works, but who at the same time is willing to assist the cause, if he will write to me, and I will see he has a card sent him.—EDWD. R. CUTLER, *Secretary, 14, Tavistock Row, Covent Garden, London, W.C.*"

— ON Friday and Saturday next a FLORAL EXHIBITION will be held at the Alexandra Palace, when liberal prizes will be offered for table decorations, bouquets, and Roses in pots. In the class for nine Roses in pots, size not stipulated, the first prize is £18, the second £9, and the third £4; while for ten Roses in 10-inch pots the prizes are £6, £3, and £1 respectively.

— A CORRESPONDENT, "VITEX," informs us, "That there is at the present time in flower in The Gardens, Elmfield, Ullet Road, Liverpool, the residence of Thomas Holden, Esq., a plant of the best variety of IMANTOPHYLLUM MINIATUM bearing twenty heads of bloom, with from twenty to twenty-four flowers on each. It has been very much admired by all who have seen it, and is a noble plant." Our correspondent desires information relative to the best plant hitherto flowered in this country, and a reference to a plant grown at Sheffield. We are unable to indicate the "best plant in the country," but the Sheffield plant is described on page 275, April 8th, 1880.

— THE EXCELSIOR LAWN MOWER of Messrs. Chadborn and Coldwell is an American form of this useful implement, and possesses many points which exhibit American ingenuity in mechanical matters. The great feature of this lawn-mower is the complete protection of the wheels and mechanism from injury and from clogging with grass clippings and earth, which is too much the case in some patterns we have seen. We have used the Excelsior and found it perform its work perfectly. It is so easily propelled that a lady might work it, and the grass can be distributed on the lawn or collected in the box as is deemed the most desirable.

— REFRESHING SHOWERS have fallen in the neighbourhood of London during the past few days, and have been of great benefit, especially to newly-planted shrubs and flowers. We learn that in the sandy districts of West Surrey both garden and farm crops have suffered much from the prolonged drought, and that Potatoes have been killed to the ground by the sharp frosts of last week.

— "L." WRITES:—"Some time since I noticed in the garden at Yardley Wood Vicarage, near Birmingham, a very simple but tasteful ARRANGEMENT OF BULBS. Clumps of the large-flowered Snowdrop, *Galanthus nivalis* McIlvillei, were planted at intervals, and were alone extremely beautiful, but their appearance was still further enhanced by each clump being encircled with plants of the brilliant blue *Scilla siberica*. The effect of this contrast was most charming, and considerably more attractive than the lines of Hyacinths a short distance away, though these were fine

and comprised some excellent varieties. The Rev. J. A. Williams is so well known as an ardent amateur rosarian, that the only regret I felt on my visit was that it had not been delayed until the rosy month of June, when I should have the pleasure of seeing his pets in their best condition."

— WHEN in such fine condition as it may now be seen at Regent's Park, TULIP COMTE DE MIRABEAU can scarcely be equalled for massing in beds; even the old and useful White Pottbakker is almost outrivalled. In a bed there among many others of more or less beauty this variety is especially notable for the pure white, medium-sized, well-formed flowers, and their great regularity of height. In striking contrast with this are fine beds of Yellow Prince, Cottage Maid, Cramoisie Superbe, Keyzers Kroon, and Joost Van Vondel, well arranged and planted.

— A CORRESPONDENT observes:—"One of the most attractive and ORIGINAL BOUQUETS that I have seen for some time I recently noticed in the grand row of Covent Garden Market. It was composed of Maréchal Niel Rose buds and half-expanded blooms, the yellow Marguerite (*Chrysanthemum Etoile d'Or*), and a large rich purple self Pansy. These were arranged informally with fronds of *Adiantum cuneatum* and *A. gracillimum*. The simplicity and freedom of the design and the contrast of the colours rendered the bouquet by far the most beautiful, to my mind, of all in the market."

— WE have repeatedly referred in praiseworthy terms to LETTS'S POPULAR ATLAS as it was issued in monthly parts, but as we have now before us the first complete volume of the series it deserves a few words of commendation as a whole. It contains thirty-six maps delineating all the most important countries and districts of the world, indicating with surprising clearness and fidelity the most minute details, and comprising much statistical and general geographical information of considerable value. A very complete index of 23,000 names is an additional recommendation to the cheapest and most satisfactory atlas we have seen.

— WE have received a copy of a small work by Mr. D. T. Fish, published at the Bazaar office, and entitled "THE CHERRY AND MEDLAR." It gives outlines of the history of both fruits, with particulars of propagation, planting, pruning, training, and general culture, and appears to be fairly accurate and reliable. The fourth part of the same author's treatise on "Bulbs and Bulb Culture" has also been received, which comprises cultural details relating to *Ixias*, *Sparaxis*, *Irises*, and other similar plants, accompanied by several highly unsatisfactory woodcuts.

— MR. PETER HENDERSON contributes the following upon MOSS-MULCHING to the "American Gardener's Monthly."—"We have now practiced moss-mulching most extensively for over a year, and in no single instance have we seen any fungus on the roots of the plants that could be ascribed to moss-mulching. It is true that a few days after the mulching of moss and bone is put on, probably for a week, a mould or fungus appears on the surface of the "mulch," but this is in no way injurious. We find that its use promiscuously on plants is only safe from, say, March to October. We use it even in midwinter on gross-feeding plants such as Callas, Dracenas, Palms, and plants of that character. But we found that plants that were in a partially dormant state and are grown at a low temperature, such as Azaleas and Camellias, are better without it. I think in the summer months, on Azaleas particularly, is most beneficial and marked. At the date we write (April 4) nearly every plant in our establishment, as soon as it is established in anything over a 3-inch pot, is submitted to the moss-mulching process, which we will continue throughout the entire season.

— WE are requested to remind our readers that an ASPARAGUS COMPETITION will be held in the horticultural department of the Bath and West of England Society's Show at Tunbridge Wells, commencing on Monday, June 6th. Notice from those desiring to compete should be given to the Secretary of the horticultural department, the Hon. and Rev. J. T. Boscawen, Show Yard, Tunbridge Wells. All exhibits should be staged on the morning of Monday, not later than twelve o'clock. The following prizes are offered for the first year's Exhibition, and are (except the last two for market growers in Kent), open to growers in any part of the United Kingdom. *Prizes for Gardeners in Private Places.*—For the best bundle of Asparagus grown by the exhibitor—first prize, £4; second, £2 10s.; third, £1 10s.; fourth, £1. The bundle of Asparagus is to consist of sixty heads. The prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable. Prizes will not be given where in the opinion of the Judge there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the Judges in all cases where they think it well to do so. No imperfect or "double" heads will count. *Prizes for Amateurs not Employing any Regular Gardener.*—For the best fifty heads—£2 10s.; second prize, £1 10s.; third prize, 15s. Grown by the exhibitor. *Prizes for Cottagers.*—For the best twenty-five heads grown by the exhibitor—£1 10s.; second, £1; third, 10s.; fourth, 5s. *Prizes for Market Growers.*—For the market grower who shall exhibit the best three bundles, each containing one hundred heads—£5 5s. This prize is offered by the Bath and West of England Society. For the market grower in the county of Kent who shall exhibit the two best bundles of Asparagus, each containing one hundred heads—first prize, £3 3s.; second, £2 2s.

#### FRUIT-GROWING IN KENT.

WE sometimes find large books with little in them besides words, but occasionally a small work crowded with instructive, suggestive, and interesting matter comes before us. Such an one is a small manual of thirty-two pages by Mr. Charles Whitehead, F.L.S., Barming House, Maidstone, which originally appeared as an essay in the Journal of the Royal Agricultural Society, and from which we take the following extract:—

An improvement has taken place in the management of fruit land in Kent during the past twenty-five years; and at the same time greater facilities of transit and a steadily increasing demand have led growers to add largely to their plantations. This is proved by the Agricultural Returns, which show an increase of 1031 acres in 1880 over the return of 1879; the acreage of arable or grass lands used for fruit in Kent being 14,645 acres in 1880, as against 12,032 acres in 1875.

Foreign competition has assumed enormous proportions, and is becoming more formidable each year. The imports of raw fruit in 1875 from the chief importing countries were:—Belgium, 703,777 bushels; France, 581,170; Holland, 199,860; Spain, 199,650; the United States, 164,160; Germany, 146,493. In 1879 the imports of raw fruit from these countries were:—Belgium, 962,983 bushels; France, 477,473; Holland, 598,952; Spain, 429,116; the United States, 734,904; Germany, 418,778, showing an enormous aggregate increase. This has stimulated Kentish producers to pay greater attention to the cultivation and management of fruit land as well as to the selection of better and more attractive sorts.

Though a certain amount of improvement has taken place in the methods of fruit-culture, there is still much to be done as regards selection of sorts, the methods of planting, the actual cultivation, and the pruning of the trees. The delicate and important operation of pruning, which makes all the difference between high and low production, is, it must be confessed, but imperfectly understood by many Kentish fruit-growers and their tree-cutters or pruners. Instead of the careful selection of the wood most likely to bear fruit—in place of a *raison d'être* applied to every stroke of the knife—the typical tree-cutter hacks and slashes away ruthlessly, aiming principally at obtaining a symmetrical cup-shaped form rather than at retaining the wood most likely to bear fruit. He is paid by the tree, and cannot afford pauses for reflection as to individual shoots or buds, like the careful interested pruners in France and Belgium, or like some of the best English gardeners.

It was formerly the prevalent notion, still holding to some extent, that fruit trees require but little manure. Apple and Cherry orchard lands were mown or fed off with lean sheep year after year, with the result that the trees only bore a crop once in two years, and the fruit

grew small by degrees and beautifully less. The owners of the celebrated Cherry orchards in East Kent have found out the folly of starving the trees. For the last few years they have manured the land liberally with manure brought from the London stables and cow-sheds, which has largely increased the quantity and improved the quality of the fruit. Sheep fed with corn and cake feed off the grass, and it is now quite the exception to mow orchard land.

It might be supposed that Kentish fruit-growers, only forty miles distant from London, would not be affected in any great degree by the competition of foreigners in the matter of soft fruit—i.e., fruit of a perishable nature, as Gooseberries, Raspberries, Currants, and Strawberries; yet, as a fact, the cost of carriage of a ton of fruit from France to the London Docks is no more than from Maidstone to the London markets. Rents and labour are cheaper in France and Belgium, while the climate of the former country is far more suited for the production of fine well-flavoured fruits than our own. 962,983 bushels of raw fruit were sent to England in 1879 from Belgium, the value of which was £268,914. France sent 477,473 bushels, whose value was £264,908, showing that the quality of French fruit is far superior.

Fruiterers and salesmen say that the foreign fruit has much improved in flavour and size, and is steadily improving, while the imports are increasing year by year, as may be seen by the returns of the Board of Trade, which show that the total amount of "raw" fruit imported into England in 1879 had reached the enormous amount of 4,219,951 bushels, as against 1,128,568 bushels in 1871. France sends Strawberries, Cherries, Red Currants, Gages, Plums, Pears, and Apples; and sent to this country 477,473 bushels of "raw" fruit in 1879, against 354,606 bushels in 1871. Plums and Currants arrive from Belgium and Holland. Apples and Pears are imported from Spain. Immense quantities of Apples come from America, of fine quality and flavour, almost equal to Ribston or Cox's Pippins in good seasons. A large Covent Garden fruit merchant wrote on the 18th of December, ult.: "This day alone there are 16,394 barrels and 109 cases of Apples from America, to be sold by auction." In October last no less than 167,400 barrels of Apples were landed at Liverpool from America, equal to 502,000 bushels.

Two principal systems or methods of planting fruit prevail in Kent. One, according to which it is intended that the land under the standard trees shall be eventually laid down with grass; the other, where the land will always be cultivated and kept constantly filled with fruit trees and bushes under the standards or half-standards.

East Kent growers for the most part adopt the former method, because it is not good for Cherry trees that their roots should be disturbed after a certain time. The standard trees are planted first on well-prepared arable land, with Hops or fruit bushes, which give a return until the standards come in. When these have arrived at a good size the Hops and bushes are taken away and grass seeds are sown. Apple orchards are occasionally formed in this way; but Apples are generally grown on the other system—in permanent plantations set out and planted with Plums, Damsons, Gooseberries and Currants (and Filberts in some parts of the Mid Kent district), which are renewed from time to time as occasion requires. In an orchard which is eventually to be laid down with grass, the standard trees, if Cherry trees, are set from 33 feet to 24 feet apart each way, giving forty to eighty trees to the acre. If Apples are planted they are set about the same distance apart. Plums or Damsons are very often put between Apples or Cherries, and are taken out when they get in the way. In a plantation that is to be permanently cultivated the Apple trees are set about 30 feet apart. Plums or Damsons would be set in between each Apple tree, and Gooseberries and Currants between the rows, 6½ feet apart, so that there would be 44 Apple trees, 44 Plum or Damson trees, and 1031 bushels on each acre. Where Filberts are grown under Apples they are usually planted about 13 feet apart, which would give about 257 trees to the acre, and Plums or Damsons are not generally planted in this case. The cost of preparing the land and of planting it as a mixed plantation with all incidental expenses, varies from £16 to £20 per acre, according to the sorts and number of trees planted. Apple trees cost 1s. 6d. each on an average. Plums and Damsons 1s. each. Filbert and Cob trees 4d. each. Gooseberry and Currant bushes from 10s. to 14s. per 100. The annual average cost of cultivation, including rent, interest on outlay, tithes ordinary and extraordinary, rates, maintenance, and other expenses, exclusive of all charges connected with picking and selling the crop, which would, of course, depend upon its amount, ranges from £13 to £16 per acre.

In the Weald of Kent Apples are principally grown on grass land, the fruit grown in this way being of a somewhat better colour and quality than that which has been produced on cultivated land; and practical men hold that, independently of this, all Apples grown on the Weald clay and Hastings sand are superior in colour and size and make better cider than the fruit grown in other parts of Kent, though there is not much difference as regards quantity. It is certain that Apples grown on grass are not so liable to specks and blemishes. In the formation of an Apple orchard intended for grass, it is found in practice to be best to plant the trees on well trenched land, and to lay it down after a few years, when the trees are well established. I have planted Apple trees of the excellent variety known as "Lord Suffield" on grass land and on cultivated land at the same time, both being manured in the same way; those on the cultivated land grew away from those on grass in a remarkable degree, and bore fruit

the second year, while the others did not bear for three or four years.

Not nearly enough attention is paid to pruning the trees after they have become fair-sized. Now and then a raid is made upon those that are most bushy, which are hacked and cut about unmercifully, and it is not strange that Apple trees of the best sorts, invariably the most delicate, decay prematurely. Very few growers prune their Apple trees scientifically, or manage them thoroughly in other respects. Here and there a plantation may be found where the trees have received systematic and proper treatment from the date of planting, where good fruit is produced in abundance; and it is asserted confidently that the land in Kent really suitable for Apple-growing may be made to yield fruit not much inferior in quality to the traditional Nonpareils, Scarlet Nonpareils, Golden, and Ribston Pippins, and other sorts whose sweet memories linger yet in the recollection of Apple-loving octogenarians.

The chief sorts of Apples grown in Kent are, commencing with dessert Apples, the Ribston Pippin—*facile princeps* among Apples—now unfortunately a somewhat shy bearer. The King Pippin is much grown in Mid Kent and the Weald; this is a handsome Apple when well grown, but it is inclined to be specky on the ragstone, though doing better on the Weald clay. Joannettings and Summer Pippins, early Apples, are also grown and bring good prices. Red Quarrendens, Farleigh Pippins, Pearmaines, Nonpareils, Golden Knobs, which ordinarily keep well until Apples come round again, bringing high prices, are found in most Kentish plantations and orchards. The Court of Wick is also grown. The Margil, whose flavour is nearly equal to that of the Ribston, is too shy a bearer, and is not therefore extensively grown. The Blenheim Orange, a large handsome Apple, is much grown near Maidstone and in the Weald. Cox's Orange Pippin has been planted extensively of late. This is a high-class Apple for dessert from November to January, supposed to have been raised from a pip of a Ribston Pippin. The Sturmer Pippin is a most valuable late Apple.

The principal cooking Apples grown in Kent are Keswick Codlins, Gooseberry Pippins, Hawthorndens, Warner's Kings, Northern Greenings, Wellingtons, Winter Queenings—all valuable sorts; the Golden Noble, Lord Suffield, a very fine-flavoured early-bearing sort, the Tower of Glamis, the Manx Codlin, and the Stone Apple, or Lodington Seedling.

As many as 500 bushels per acre have been grown in plantations where the trees were in their prime. Taking an average of seven years of the average Apple-growing land in the county, the crop per acre per annum would be about 130 bushels. The average price per bushel for Apples home to the grower, for the last ten years, has been about 2s. 2½d.; the expenses of picking, packing, carriage, commission, and return of sieves, amounting to about 1s. 4d. per bushel, having been deducted. For the preceding ten years the average price, clear of all these expenses, was about 1s. 10d. per bushel. The annual yield per acre of the orchards under grass must be regarded as being 20 per cent. larger than that of the plantations in respect of Apples; but the average annual yield of both taken together amounts to about the quantity of bushels stated above. The fruit-growers in Kent do not appear to have tried growing upon a large scale Apples and Pears on low bush-trees obtained by working upon the Paradise stocks, whose influence tends to dwarf the habit of growth and to produce fruit abundantly. These bushes can be easily pruned, and root-pruned if thought desirable. There are several plantations of these near London, one notably at Chiswick, belonging to Mr. Dancer, who grows quantities of the finest fruit upon this system, which is thought might be adopted successfully by the large fruit-growers in Kent.

There is much more similarly interesting in the able essay from which we have cited. It is published by Effingham Wilson, Royal Exchange, London.

#### TRITONIA HYALINA.

TRITONIAS are well known and valued in many gardens, such species as *T. aurea* and *T. crocata* with their numerous varieties proving useful additions to our conservatory or greenhouse plants; but the one represented in fig. 87 is, when in good condition, unquestionably the finest of all, and at the present season it can be scarcely rivalled in the brilliancy of its orange-coloured flowers by any other plant grown in cool structures. The plant from which the specimen sent was taken was grown in the greenhouse at Orsett Hall, Romford, the residence of Captain Wingfield Baker, and the effect produced by several small examples arranged on the side stages as a margin to the larger plants was very bright and pleasing. Two or three bulbs are grown in a 60-size pot, ordinary light sandy soil being employed with good drainage, and very little difficulty appears to be experienced in inducing the plants to flower freely. But perhaps Mr. R. Castle, the gardener, may give our readers a few notes on the treatment he finds successful for such plants.

The plant was received there under the name of *Tritonia aurea*, but it differs considerably from the finest varieties of that species; and on a specimen being submitted to Mr. J. G. Baker of Kew, who

is a very high authority on the nomenclature of Iridaceous plants, he at once determined it to be *T. hyalina*, so named by himself in his elaborate description of the order, and considered to be synonymous with *T. fenestrata*. Its most marked character is the peculiar transparency of the lower half of the petals exactly resembling thin glass, and to that circumstance it owes the specific name *hyalina*. The upper portion of the petals is rounded and of a bright orange hue, five or six flowers being borne on a scape 8 or 9 inches high sufficiently to raise them above the tapering leaves. *T. fenestrata*, which is said to be synonymous with *T. hyalina*, was figured in the "Botanical Magazine" in 1803; t. 704, but appears to differ slightly from the one represented here, as the petals are somewhat widely separated, though the peculiar transparency is similar in both. Those who desire a brilliantly

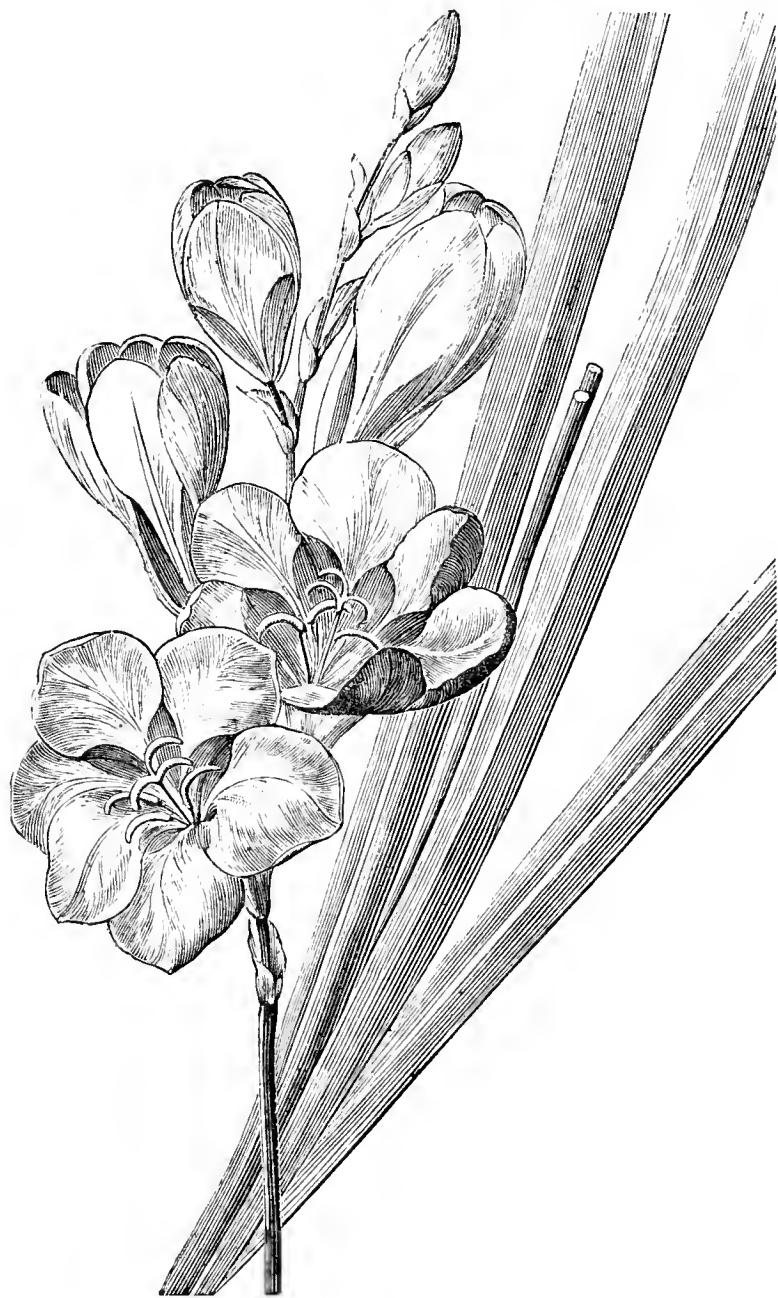


Fig. 87.—*Tritonia hyalina*.

coloured bulbous plant for greenhouse and conservatory decoration at this period of the year cannot err by growing this fine *Tritonia*; the flowers also last well when cut and the stem placed in water, hence are valuable for furnishing vases and using in bouquets.

**AURICULA CLASSIFICATION—MEALD CENTRES.**—In the very interesting lecture, which you were good enough to find space for, delivered by the Rev. Mr. Horner at South Kensington, there was much to interest, and some points that, with his usual courtesy, that gentleman I am sure will not object to still further add to, especially for the information of amateurs like myself having only a few years' experience in Auricula culture. Mr. Horner says, speaking generally, "Auriculas are divided into two grand classes, with mealed and unmealed centres—the former the Auricula Royal of the florist, and the latter Alpines, having the essential qualities of unmealed centres and heavily shaded petals." Now I should like some information on what may be called a



sub-section of the 'former, that for want of a better designation I would like to call mealed Alpines, but that from the above classification the term is inadmissible—a paradox! I have some few seedlings with fine bright yellow eyes, mealed centres, and in most cases with the ground colour brown shaded to purple next the paste and becoming lighter towards the edge. Were such plants destitute of meal they would be shaded Alpines, like many others I have already; and were there no shading, but a heavy dull crimson or claret varying to a bright black with mealed centre, like others I grow outdoors, they would be termed, I presume, "selfs." I send a few pips of the mealed blooms already referred to, which are  $1\frac{1}{4}$  inch in diameter and very showy, though only grown in pots  $2\frac{1}{2}$  inches in diameter and seedlings of last year.—W. J. M., *Clonmel*.

[The flowers did not arrive in good condition.—ED.]

#### REVIEWS OF BOOKS.

*The Ladies' Mulum in Parro Flower Garden.* By SAMUEL WOOD. London: Crosby Lockwood & Co.

IN a recent notice of a much-esteemed church dignitary it was stated as a point in his favour, and as a mark of honour, that "he was not everlastingly writing books." No such honour as this can be conferred on Mr. Samuel Wood, nor can we congratulate the publishers on the books they are distributing from his pen on gardening subjects. Such essays as are conveyed in outwardly attractive volumes with catching titles would not be admitted in the columns of the gardening press. Mr. Wood may be a good gardener, but is certainly not a competent writer. We have in milder terms intimated this before, but as his publishers continue issuing works that are the reverse of creditable additions to garden literature it is necessary to speak more plainly. Referring to red spider "running about as if to save a house on fire," and describing thrips as "not larger than a fly's eye," and the common Tansy "as one of the most splendid carpet bedding plants we possess," can only provoke a smile, and incite wonder that such writings are printed; and yet the author has the assurance in his preface to the calendar to remark that "as a rule calendars are as common as weeds, and frequently not much better," &c. We will not refer further to this book except to remark, that although it contains some practical information, it is a pity Messrs. Crosby Lockwood & Co. did not submit the MS. to a competent horticultural editor for revision; then there would not have been sufficient of it left to form the book.

*Epitome of Gardening.* By THOMAS MOORE, F.L.S., F.R.H.S. Edinburgh: Adam & Charles Black.

A GLANCE at this book suffices to show that only a small portion of it has been written by Mr. Moore from his own knowledge and his own practice. Part I is an introductory chapter on the principles of horticulture by Dr. Masters, and is the most satisfactory portion of the book, worthy of being published separately in a cheap form. We are not able to indicate the writers of the remaining portion. The articles appear to have been compiled from various sources, some of which are acknowledged, but not all. For instance, our attention has been drawn to page 153, where the matter undoubtedly is substantially and in some striking instances literally the same as that on pages 15 and 16 in Mr. Simpson's book on training fruit trees that we recently reviewed, and there is reason to suppose that Mr. Moore has been indebted to the paper in which Mr. Simpson's articles appeared before being issued in book form for the instructions he has given on the page quoted; yet there is no intimation whatever that he is indebted to anybody. We have not searched for other examples of bookmaking in the volume, but it is quite apparent that nurserymen's catalogues and trade mediums have contributed to a considerable extent in furnishing the pages. We can scarcely conceive that a book of this kind is required by gardeners and horticulturists generally, dealing as it does in a necessarily brief and fragmentary manner with the rudiments of horticulture; but possibly, as is stated in the preface, there may be some others to whom such a manual may be acceptable. There are not, we are constrained to say, many good judges of books on horticulture who will consider that this volume will add to the literary reputation of the author and compiler; and it is a poor performance to have appeared in such a work as the "Encyclopædia Britannica," from which it has been reprinted.

*Horticultural Buildings.* By F. A. FAWKES. London: B. T. Basford, 52, High Holborn, and at this Office.

THIS is a rather elaborate volume treating on the construction, heating, and arrangement of horticultural buildings, with re-

marks on some of the principles involved in their construction. The author, as a member of the firm of Messrs. T. H. P. Dennis and Co. of Chelmsford, has had great experience in the work in question, and, as stated in the preface, he has "honestly endeavoured to treat the subject from an independent disinterested standpoint;" and, as is further stated, the work has been prepared because "up to the present date no book has existed from which a gentleman could obtain, in a complete concise form, unbiassed reliable information to assist him in deciding what garden structures would best suit his requirements; in which an architect could see just those constructional and mechanical points which should be decided by the horticulturist, and in which a gardener could find details beyond his province, but with which he should certainly be acquainted." Beyond question there is much in this volume that gardeners and all interested in the erection of horticultural buildings should be acquainted with, and it will prove a useful work of reference. The text is elucidated by numerous illustrations.

#### PORTRAITS OF NEW AND NOTABLE PLANTS.

*ROSA MICROPHYLLA.* (*Bot. Mag.*, t. 6548.)—The single or typical form of this old Rose is very well depicted in this plate, with representations of the distinct fruit which is said not to have been figured before. "All we know of its early history is that it was introduced from Canton into the Calcutta Botanic Gardens by Dr. D. Roxburgh, from whence it has been diffused into Indian gardens generally. . . . In its double form *Rosa microphylla* is commonly cultivated throughout China and Japan, and even in Upper Burma, Dr. Anderson having found it in Momgen. The fruit, which is as large as a Crab Apple, is eaten by the Japanese."

*ASTER GYMNOCEPHALUS.* (*Ibid.*, t. 6549.)—A pretty species of Aster from Mexico, with neatly formed bright rosy purple heads of flowers. The upper leaves are small, about an inch long, and have a deeply toothed or bristly margin; the lower leaves are 6 inches or more in length, with a distantly toothed margin. Professor Asa Gray states, in his description of the plant, that "This appears to be a common species throughout the northern and central parts of Mexico, and it occurs in almost all collections made in that region. It is here for the first time brought into cultivation from seeds collected in 1878 by Drs. Parry and Palmer in the vicinity of San Luis Potosi. It is a fine acquisition to the gardens, and its rosy purple rays distinguish it from all its near relatives." The plant is comparatively dwarf, as it only attains a height of 1 to 2 feet, and well deserves a place in a collection of hardy plants.

*IMPATIENS AMPHORATA.* (*Ibid.*, t. 6550.)—An annual Himalayan Balsam, attaining the height of 3 to 6 feet, and described as one of the handsomest species of that section. "It was introduced into Kew by seed from Kashmir, and flowers annually abundantly in the months of August and September. It was in cultivation forty years ago in the Horticultural Gardens, having been sent from the gardens of Saharunpore in North-west India, when these were under the superintendence of Dr. Royle."

*CLADRASTIS AMURENSIS.* (*Ibid.*, t. 6551.)—An East Asian representative of the American *Cladrastis virginica* (*Virgilia lutea*). It is a tree reaching the height of 40 feet, bearing pinnate leaves and long dense racemes of whitish flowers. Being quite hardy it is a decidedly useful addition to the shrubbery, and at Kew it produces its flowers freely in August. The specimens in that garden were contributed by M. Van Volxem of Brussels.

*AQUILEGIA FORMOSA.* (*Ibid.*, t. 6552.)—A very beautiful species of Columbine, nearly related to *Aquilegia canadensis*, with red and yellow flowers. The sepals have a bright yellow central band and bright red margins, the petals being yellow at the upper portion, and having very dark rich red spurs. Flowers of a yellow *Aquilegia* are also shown in the plate; the *A. flavescens* of the Rocky Mountains considered by Sir Joseph Hooker to be merely a variety of *A. formosa*.

**LIBERIAN COFFEE.**—Mr. Morris, the Director of Public Gardens and Plantations in Jamaica, has recently issued a pamphlet entitled "Notes on Liberian Coffee, its History and Cultivation." In this pamphlet Mr. Morris has brought together a great deal of valuable matter connected with this remarkable species of *Coffea*, which will prove not only interesting to those who wish to see the resources of our colonies developed, but particularly to those about to embark in the cultivation of Coffee as an article of commerce. The pamphlet commences with some historical remarks on the species, and then touches on its introduction into Jamaica, followed by a consideration of the plant as found in Liberia, in the West and East Indies, of its propagation and the establishing of plantations with regard to climate, soil, and various other details; some interesting notes follow on the yield of Liberian Coffee trees, and of the commercial value of the coffee itself. In view of this pamphlet being of considerable use to persons abroad who may be about to embark in the

cultivation of this particular species, we may say that it is issued from the Government Printing Establishment at Jamaica, and that its price is sixpence.—(*Nature.*)

#### DOUBLE-BLOSSOMED CHERRIES.

ORCHIDS and rare exotic plants generally are eminently worthy of the attention that they from time to time receive, but we must not overlook the merits of less rare occupants of our gardens that

contribute to their beauty during the spring months—namely, flowering trees and shrubs. Rare and costly exotics can only be grown by a comparatively small number of those who enjoy flowers, but hardy plants and trees can be grown by many and admired by all.

One of the most beautiful of all trees for the adornment of parks and pleasure grounds during the spring is the double-blossomed Cherry represented in the annexed engraving. Large specimens laden with thousands of large flowers are strikingly beautiful,

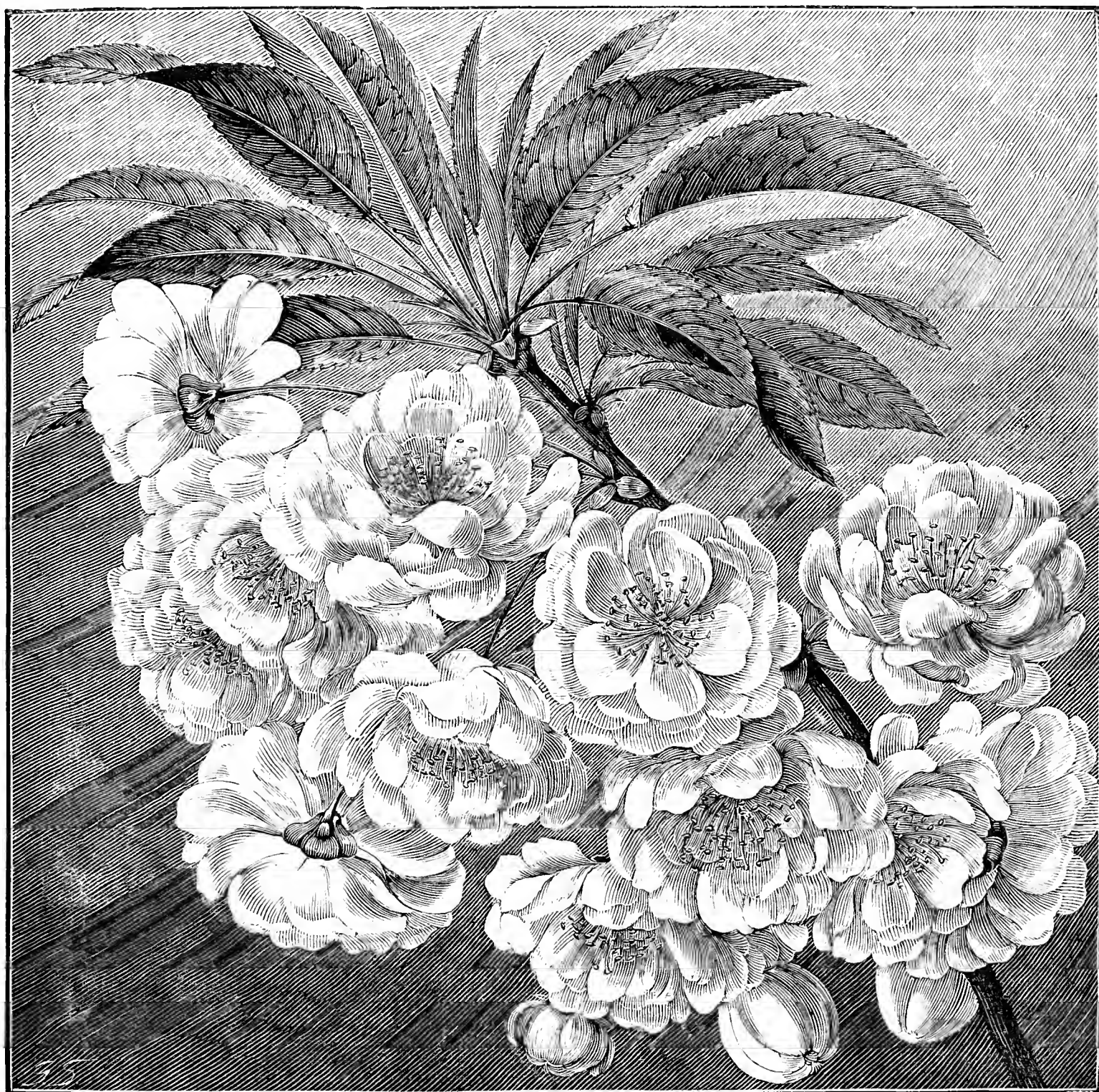


Fig. 88.—DOUBLE-FLOWERED CHERRY.

and it is somewhat surprising that a tree so conspicuously attractive is not more freely planted. There are several forms of double Cherries, but this is the most imposing of them all. The variety known as Waterer's is attractive by its rose-tinted flowers; the double form of the Morello, *Cerasus vulgaris*, arrests attention by its rosette-like blooms, as also does the Japanese species, *Cerasus japonica flore-pleno*; but for stately spreading beauty the variety figured from a spray brought from Chiswick is not surpassed.

The tree is known botanically as *Cerasus sylvestris flore-pleno*,

the specific name being that adopted by Ray and Bauhin, and is synonymous with Mönch's *Cerasus avium*, under which name the tree is generally known, and Linnæus's *Prunus avium*. It is named by the French, *Mérisier à fleurs doubles*, or *Merisier Renonculier*, and is sometimes seen in England under the name of the Double French White Cherry.

MR. WOODHEAD'S AURICULAS.—Enclosed I send you one of Mr. Woodhead's pips of Auriculas; it is a white edge, the best



I ever saw. In speaking of Auriculas it is an old but trite saying that "nothing will beat the old sorts;" but there is no mistake about the superiority of the flower enclosed. I will send you notes on the Auriculas in question shortly.—GEO. RUDD.

[The flower is undoubtedly of great merit, the white being firm and pure both in the paste and edge, the eye rich, and the body colour black; the flower is flat, smooth, and perfectly round, and the colours defined with great precision.—ED.]

#### RENDERING PEACH TREES FRUITFUL.

To produce Peaches in unheated glass structures may not appear a hard task to some, but under the following circumstances it proved to me a very great difficulty for years. The trees were in excellent health as to wood and leaves, always summer-pruned, and apparently well ripened. The flowers seemed to set well, but almost all the fruits dropped off as they commenced swelling. After many trials of the old soil of the border, which I found to be spongy, cut a trench round the trees 4 feet in diameter, or 2 feet from the stem, and filled up with old pasture soil and one-third lime rubbish. The following season the trees bore a fair crop, and have greatly improved, so that this year I have fine crops of healthy fruits, of which I enclose some specimens for your inspection. When the trees are in flower in spring I close the house early in the afternoon, and in autumn I close it every evening. I do not adopt any other mode of fertilising the flowers than by knocking the branches with my hand.—B. G. COMBER, *Co. Down*.

[The branch sent was an excellent example of fertility. Every blossom appeared to have set, and a great number of fruits will have to be removed from the trees.—ED.]

#### ODDS AND ENDS.

*Omphalodes verna*.—The large, bright, rich blue Forget-me-not-like flowers of this plant have been freely produced through April, and have a charming appearance in bouquets. It thrives in light well-drained soil where it is afforded slight shade in summer. On knolls of rockwork it succeeds admirably, having a partiality for stones of a sandy porous character; but it must have shade from hot summer sun, and as much light as possible in winter and spring. On slopes of light soil by woodland walks it is very pretty, the moderate shade afforded by deciduous trees suiting it perfectly. Propagation is readily effected by runners, which it produces freely in early summer. In order to have it in flower at an early season rooted runners or offsets should be planted in May in light soil on a north border 1 foot distance apart. The plants should be lifted in autumn, and planted in frames or pits with a south aspect in a sheltered position; the soil, which should be light and rich, not being more than a foot from the glass. Plants may be potted in autumn and transferred at intervals from early December to February to a house with a temperature of not over 50°.

*Myosotis dissitiflora*.—Beautiful as this is now (May) out of doors, being much later than usual, it is valuable in pots at the dull season. Plants should be potted in autumn, placed in a cold frame, and then arranged in a greenhouse or conservatory. Seeds may be sown now in pots or pans in gentle heat, and when the young plants appear remove them to a cold frame, and if planted out 9 inches apart in an open situation they will be suitable for lifting in autumn. The slips or cuttings should be inserted on a shady border.

*Helleborus colchicus*.—This, as frequently seen in gardens, and as I have had it hitherto, is confounded with *H. olympicus*, but it is very distinct. It flowered at the close of April outdoors. The flower stem and ternate leaves which accompany the flowers are a deep brownish purple; the flowers deep purple or plum with a coppery tinge. Height 12 inches. It is as hardy as any of the others, doing well in loamy soil somewhat moist.

*Calla (Richardia) aethiopica*.—Whether on the plant for decorative purposes or for cutting, the spathes of this are always appreciated. Plants that have flowered may be divided, planted out when frosts are gone in an open situation, sheltered if possible from wind, and be liberally supplied with liquid manure through the summer. At the end of September lift and pot the plants, giving a temperature of 45° to 50°. Care should be taken to harden them well off before planting out; and if they have been in houses in the shade of Vines the foliage must be inured to light, or the foliage will be scorched if the plants are brought from a warm shaded house suddenly. There is another method and much older. The plants are kept in the pots constantly, and often in the same pots for years without anything beyond rectify-

ing the drainage and top-dressing with old cow dung. Some plants may be in 12 to 15-inch pots, which form fine specimens for conservatories. After flowering and as soon as safe in spring they are stood on ashes in the full-sun. It is usually not advisable to place them outside before the middle of May, or better not till June, keeping them well supplied with water. The plants rest for a time and then grow strongly, which is the time to rectify the drainage, top-dress with cow dung, and supply liquid manure. By October some progress will have been made, and the plants must be housed: they should have a light position and a temperature of about 45°. It is important that the plants be marked. Those that have been started first may be marked 1, and so on in order. Where there is a number of vineries and Peach houses started at intervals from November or December onwards there will be no difficulty in keeping a succession of plants in flower from an early to a late period. Plants in an ordinary greenhouse will flower in April and May, and in a cool one but safe from frost somewhat later. Earlier spathes may be had by starting a batch of plants in October, or if necessary in September. Each strong crown will give two spathes, and in some instances three.

*Violets*.—These have been very fine. All outside have been killed except Queen, Victoria Regina, and the old Single White, and those were much injured. In frames and pits Victoria Regina was far ahead of all others in autumn, but inferior to Prince Consort in spring. Princess of Prussia is not nearly so hardy as those mentioned, and succeeded very indifferently. *Devoniensis* is fine in spring, but is no use for autumn and winter. Russian, Russian Superb, rubra simplex, obliqua striata, suavis (different from the Russian, as I have it) have been good. White Czar is the purest white of all Violets and very desirable, highly fragrant. The old White (*albiflora*) was fine in April. *Viola odorata* and var. alba, or the common wild single blue and white sweet-scented Violets, are very interesting, and much finer under cultivation than in a wild state. Among the doubles New York was more floriferous than De Parme, but is not nearly so hardy; similar remarks applying to Marie Louise as to New York in point of hardiness, and Neapolitan is more tender than any other of the type. Belle de Chatenay, though double and a better white than Queen, has not done half so well. King and Double Russian are very similar, the former being larger and not so freely increased. *Parmensis plena* is nearly white, tinged or striped rose, and very double. Blandyana, though not always to be depended on for its stripes, is a fine Violet; and Double Red (*rubra plena*) is a pale red colour. Arborea and A. alba plena are interesting, but must be kept in a greenhouse in winter to do well. *Argenteaflora* is very floriferous, not flowering in winter, but it flowered in March in frames, outdoors in April, and will continue through the summer if the runners are not removed.—G. ABBEY.

#### IXIAS AND SPARAXIS OUT OF DOORS.

HAVE any of your readers succeeded in growing these bulbs in the open garden? For four years I have endeavoured to do so, but without much success. I planted small bulbs as soon as I could obtain them in autumn or early winter; they soon started and they were protected, one season with leaf soil, another with cinders, and each time with a handlight. The second season I had a moderate display of flowers from some of the bulbs. I tried again, but the severe winter of 1879-80 cut them down again. However, in the autumn of 1880 I found not only had some of the bulbs survived but had produced several small ones. Last autumn I procured *Ixias*, *Sparaxis*, and *Babianas*, and planted them on the 30th of August, and on the approach of frost covered them with ashes and a handlight. They all grew vigorously and appeared most promising in February and March, but the last frost in April cut them all down to the ground; and I feel that it is hopeless to expect any bloom from them this year, but I see that some of the old bulbs which were left in the ground from previous years are growing. My experiments have not been successful, and still I think these beautiful flowers may be grown in our gardens as freely as the *Gladiolus*.

Have any of your readers tried planting the *Ixias* and *Sparaxis* in the open borders in spring, and in what months? and if so how have they preserved the bulbs through the winter months? Perhaps someone can tell me what is the natural habitat of these bulbs, and what kind of soil they require.—G. O. S.

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 22. NEW SERIES.

THE larger beetles in the division of the *Phytophaga* are, as a group, harmless compared with the smaller and prolific species,



several of which we noticed in our last article. Bulky and rotund is the familiar sluggish insect that is popularly called the "Bloody-nose Beetle" (*Timarcha lœvigata*), because it readily ejects from the mouth a drop of red fluid when it is touched. Being partial to the hedgerows this insect occasionally appears on those which surround some garden plots, especially if they have been allowed to fall into a neglected condition. From a hedge the beetles are wafted perhaps by the breeze, and descend upon some plant where a gardener discovers them, and has his suspicions aroused. The unlucky *Timarcha* is generally doomed to destruction, though it is not one of those beetles that does any appreciable amount of mischief. Indeed the matured insect—which is of deep purple, almost black hue, dotted with tiny punctures which seem to give it a velvety gloss—does not eat much. Probably the larva has a good appetite, but its preference is for the low-growing plants in mixed hedgerows, where it hides judiciously, since the soft fat body might offer a temptation to hungry birds; though it is said (by those, I presume who have made experiment) that the juices secreted by both the larva and beetle are so bitter as to prevent the birds from meddling with them.

In the genus *Chrysomela* are reckoned nearly twenty British species, most of them of moderate size, globular in form, and brightly coloured, golden tints predominating, hence the name. Some of the species are injurious to trees, upon which, during seasons favourable to their increase, both larvæ and beetles are found in swarms. Like the preceding they have usually the power of emitting a dark (often strong-smelling) fluid either from the mouth or from the joints of the legs, that is apparently designed to keep off enemies. One curious circumstance connected with the history of several *Chrysomelæ* is, that the liquid they secrete has long had the repute of acting as a specific for pains in the teeth and jaws. A finger had to be well moistened with this and gently rubbed upon the part affected. If the cure is not to be ascribed to fancy there must be something of a sedative

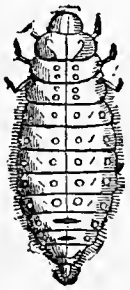


Fig. 89.—Larva of *Chrysomela populi*.

nature in the fluid, which is possible; for the belief has certainly prevailed many years, and over a large area; one species indeed has been named *C. odontogicus*, but it has no claim to power more than its relatives possess (fig. 89). *C. populi* resorts to the Poplar and Sallow, a pretty insect, bronzed and red, capable of flying briskly if so inclined, but generally noticeable by day in the act of crawling upon the twigs. The larvæ are greyish, short-legged, and stout, abroad at times in sufficient numbers to strip whole branches of their leaves, but they do not affect the tree's life. Upon the Alder is found the blue beetle, and the green tubercled larva of *C. Alni*, while the Aspen is greatly infested by *C. tremulæ*, black and chestnut, with a preference for the soft portions of the leaf, all the fibres being cautiously avoided.

The Tortoise beetles are singularly formed; *Cassida viridis* is one of the commonest of these, occurring plentifully amongst Thistles. In gardens it has been taken upon the Artichoke. When these beetles are not in motion they draw the head and limbs completely under the thorax and wing-cases, which in colour nearly resemble the herbage, and thus escape capture unless the seeker is well acquainted with their habit. The larva of this species is flat, covered with spines, and it bears upon the tail a forked apparatus, which is characteristic of a *Cassida*. Few of the genus are taken in gardens, however, except as stragglers.

We have now reached the last section of the Coleoptera, the least of all the sections, and which from the three-jointed tarsus or shank is designated that of the Trimeræ. In this there are various small species, some of which are scarcely observed even by entomologists. The only important group to us is that which contains the ladybirds of popular phrase. These beetles are deserving of all the encouragement we can give them in our gardens and houses, as the persistent foes of aphides. Mr. Staveley and others have referred to them as if they were the principal destroyers of this blight; but useful though they are, we cannot allow them quite as much honour, the number of aphis-eaters being considerable and fluctuating with the season. No doubt in the autumn of most years the ladybirds and their larvæ appear conspicuously amongst the flocks of aphides; but during the spring, as I have already pointed out in this Journal, just at the time when the aphides are increasing rapidly and preparing for their May migration, the beetles in question are often to be seen in a somewhat inactive condition. Our cold spring has a depressing effect generally upon the *Coccinellæ*, but unless it is very moist the aphides are unaffected by it. The beetles hibernate, moreover,

and when in April they come forth to deposit eggs they have not quite recovered from their long sleep. As soon as the new brood of larvæ is hatched they begin to feed voraciously upon the aphides and considerably reduce their numbers.

The commoner species of the genus *Coccinella* are known to everybody. The body is flat below and rounded above, wing-cases rather soft, and antennæ short. One of their peculiarities is a tendency to vary in colour and markings, and in some species the forms and shades are so numerous that they present a puzzle to naturalists. For example, in the familiar seven-spotted species (*C. septempunctata*) not only do the spots vary in size, but one or more will be absent, and specimens are now and then taken that are without spots altogether. These, like some species of one family previously mentioned, have a propensity to discharge a fluid from the joints of the legs, which has not an agreeable odour. Ladybirds, or Ladycows our ancestors called these insects, under the belief that they were under the special protection of the Virgin, though this was before the value of the beetles and their larvæ as aphis-killers had been recognised. The name Ladycow may be presumed to bear reference to the fluid secreted by the species of *Coccinella*.

The larvæ of this species are of similar appearance, though differing from each other in size, being blackish or brown and freckled, with small heads, thickening towards the tail, by which they secure themselves to a leaf or twig while they feed (fig. 90). They also change to pupæ on the plants where they have fed, and these pupæ are sometimes destroyed on the supposition that they contain the germ of an injurious insect. *C. bipunctata*, the Two-spotted Ladybird, is of great service to the Hop-growers, but the species is so widely distributed that we find it everywhere upon plants infested with aphides. There are many varieties of this species, and a dozen or more species of about the same size which occur here and there.



Fig. 90.—Larva of a Ladybird (*Coccinella*).

One of these has a large number of spots (*C. 22-punctata*). Another species that is well known is *C. septempunctata*, exceeding the former in size, though still a small insect: this also appears in all our gardens, yet not in the abundance that is so notable with the two-spotted species. In average years there is one brood of each species, the beetles emerging towards the close of summer. The migrations of *Coccinellæ* have been often remarked upon in our periodicals: these are chiefly noticeable during August, and in *C. bipunctata* and *septempunctata*. Newspaper accounts, with their usual vagueness, have described the swarms of ladybirds as being "miles in extent;" and the appearance of hosts upon the coasts of Kent and Sussex, as in 1869, has led to the plausible supposition that they can cross the Channel in a favourable wind. To these journeys they are doubtless prompted by aphis movements.—J. R. S. C.

## ELECTRICITY AND VEGETATION.

(Continued from page 330.)

GLASS AND SHADING.—It is a well-known fact that most, if not all, flowering plants under glass do best when situate as close to the glass as practicable, and the reason generally assigned for this is that they are thus brought nearer to the light. But this is not altogether the correct explanation: it is not so much the light itself as certain results produced by the light upon the glass. There is a small electrical toy obtainable at the toyshops which affords an excellent illustration of what these effects may be. A small shallow box of deal, fitted with a sliding pane of glass for a lid, has inside a number of little figures cut out of thin paper lying loose upon the bottom. Now, directly the glass is excited by friction with a piece of leather or flannel, the figures are electrically attracted and start up, jumping and dancing about from the glass to the box until the whole of the electricity shall have been discharged. It is recognised in scientific circles that it is impossible even to lift a single finger without producing electrical disturbance; whilst Judge Grove practically demonstrated at the lecture table that a ray of light falling upon a specially prepared instrument charged it with electricity. Hence it would be utterly impossible that our bellglasses, our framesashes or lights, and our glass roofs, should escape this electrical influence, not only from the action of light, but also from the friction of the wind and every passing current of air.

On placing a bellglass upon a flat surface of earth it at once, by its non-conductivity, separates the enclosed air from that outside, and joins it electrically with the negative state of the earth with which it is in contact. Now, it has been explained that roots

are as a rule produced chiefly under this negative condition, and hence it is that such a covering facilitates and accelerates root-formation and the germination of seeds, &c.; whilst as soon as the green appears it is absolutely necessary to give air, or in other words to restore the confined atmosphere from its negative to its normal positive condition, otherwise the growths become sickly. Let these facts be applied to glass coverings on a larger scale, and the result will be identically the same. On referring to the figures 1, 2, and 3, page 355 of the previous volume, illustrating the chemical effects upon the metal as being greatest at A, fig. 1, where the positive and negative elements meet, we have an analogous proceeding with that occupying the opposite surfaces of the glass—the one positive and the other negative—and hence the nearer to the glass the greater the electrical attraction, and consequently the drawn effects occurring from distance. But this is only one side of the question. By exposure near to the glass the sides and undergrowth of a plant as well as the top are brought under the electrical influence, and thus become induced to form a sturdy and bushy growth instead of the weaklings similar to the too thickly placed seedlings of a seed pan or the too thickly planting of trees in a wood or plantation. Thus theoretically, the lower the glass be extended downwards, and the more open and exposed the situation, the better ought it to succeed. Here, too, we have an explanation of the effect of placing a sheet of glass close over freshly sown seeds either in the open or in pots. The first advantage is, that it keeps up a damp negative atmosphere, and next that it brings the electrical influence close down upon the surface of the soil. In the former case I find that laying a sash-frame down upon the fresh-raked earth, and sowing the seeds within the several compartments made by the impression of the frame, is very much the most successful way of effecting their germination.

These facts lead us to the consideration of a most important subject which few practical men seem to be agreed upon—namely, the best means of shading and the extent to which it can be most satisfactorily resorted to. It must, however, be understood at the outset that there are two opposite conditions involved in the result of shading, one the weakening of the intensity of the light, the other the lessening of its quantity, but in both cases it is an essential and indispensable point that the chemical and some other properties of the light be not destroyed or deteriorated. A case in point will give a good illustration of the reality of such an occurrence. On one side of a conservatory, in consequence of its being overlooked from the adjoining premises, the glass was kept painted with whiting; but this was rather troublesome from its oft-required renewal, and hence it was suggested that by mixing the whiting with drying oil this might be obviated. It was at once put into practice, and with such a promising appearance that it was had recourse to in several other instances. Putty thinned with raw linseed oil and a little dryer gave the surface much the look of rough sheet glass, and seemed to obstruct but little light, yet the ultimate result was anything but what would have been expected.

Along the entire side so treated extended a shelf filled with large old scarlet Pelargoniums which had occupied the same position for a number of years and had always done well previously, but this spring the greater part of them proved to be dead or dying, and this was at first attributed to the frost; but when a small frame as well as two pots covered by bellglasses similarly duded, the former filled with small plants of Ferns, the others with bulbils, were found to have shared the same fate, it became an irresistible conclusion that it was caused by some deleterious action of the light. But the most remarkable fact remains to be stated. In a small greenhouse devoted chiefly to Roses, but having an 18-inch shelf in front, the first three rows of panes over this had the inside of the glass duded in the same way; and although the seedlings, &c., for the rest of the summer did not do satisfactorily, nothing was thought of it until the succeeding spring on the Roses beginning to break into leaf, when the truth became most incontestably apparent. Two strong shoots of the Cheshunt Hybrid had been carried up to the top of the house; and the singular part is, that on the stem more than 2 feet long under the duded glass there was not a single side shoot, whilst at the commencement of the clear part of the roof the branches began, and now form a dense mass up to the top, every joint having its shoot and bud; but since the glass has been cleaned a few weakly shoots without buds have made their appearance. A few panes of glass immediately over a Triomphe de Rennes previously smeared with common whiting and left so through being inaccessible for the oil has acted without similar results, and is a fair contrast in the effects, whilst it proves that the quality of the light is of infinitely more importance than its quantity or its intensity. Now it is an essential condition that some portion of the glass, how-

ever small, should be left clear and clean, forming interstices between the shading material. This is Nature's principle of shading; for all plants and shrubs growing under trees receive their portion of sunshine through the spaces arising between the leaves and branches, and it is sunshine rather than diffused daylight against which shading is required. Practically, I have found a trellis of laths most effective, and far more satisfactory than any kind of textile fabric. It is considered that a horizontal slit admits more light through it than a vertical one, and certainly my experience leads me to believe it; but when only a moderate degree of obstruction is desired, a diagonal or lozenge-shaped opening gives apparently the best results, otherwise a kind of Venetian blind formed of laths or rods may be made so as to roll up when not required. For a temporary rough shading outside a roof or frame a small quantity of clay, made into a cream with water and sprinkled with a brush or put on with a syringe, is much better than whiting, as the first shower effectually washes it all away, which it does not with the latter; and clean glass I hold to be a desirable point.—W. K. BRIDGMAN.



#### FRUIT HOUSES.

*Vines.*—Late Vines started in February or early March are commencing flowering, and to insure a good set maintain a minimum temperature of 70°, and shake the rods several times a day to distribute the pollen. The best plan, however, is to take pollen from those Vines that afford it abundantly, such as Hamburgs, and apply it with a camel's-hair brush to the stigmas of all shy-setting kinds, such as Muscats. A somewhat lessened supply of atmospheric moisture will, if accompanied with a circulation of warm air, aid the setting. Resort as little as possible to stopping or removing laterals whilst the Vines are in bloom; but as soon as the fruit is set pinch frequently, as it is inadvisable to allow the laterals to extend greatly and afterwards be obliged to remove them in large quantities. During bright weather very little fire heat will be necessary if the houses are closed early, as with sun heat and plenty of atmospheric moisture the temperature may rise to 90° or 95°, which will do more to advance the crop than three times as long firing in dull weather. These remarks only apply to Vines in full growth, as those that have fruit nearly or quite ripe will be better kept cooler. Ventilate early in the morning. Afford copious supplies of tepid water or liquid manure to inside borders where the Grapes are swelling; and for borders where the soil is light and porous water may be necessary, as the rainfall of late has been considerably under the average. If any is supplied it must be at a temperature of 85° to 90°. Where Grapes are ripening maintain a constant circulation of warm rather dry air, but do not entirely withhold moisture, or it is likely the foliage will suffer and be attacked by red spider. There is no better remedy for this pest than painting the hot-water pipes thinly with flowers of sulphur mixed with skim milk. Attend to stopping and tying the Vines in succession houses, allowing no more foliage than can have full exposure to light and air. Vines struck from eyes early in the year and grown in pots or turves may now be planted out, giving a good watering at 95° to 100°, mulching the surface with a couple of inches of short manure, maintaining a humid atmosphere, and affording shade during bright sun until the Vines are established.

*Melons.*—Directly the fruit is cut in the earliest house and the plants are required to give a second crop, cut back the old stems to promising growths at the base. Remove some of the surface soil and supply fresh lumpy loam, watering with weak liquid manure at 90°. Maintain a rather close and moist atmosphere, and if the plants are in good health they will soon produce another crop of fruit. If the old plants are very much enfeebled by carrying the first crop, or if they have been infested with red spider, an entire removal of the old compost must be made, and the house thoroughly cleansed. Beyond covering the rubble over hot-water pipes with turves, only hillocks

or ridges should be formed, and flattened at the top so as to give a depth of soil of 10 inches, and when this is warmed plants may be placed out at 30 to 36 inches distance apart, giving a good supply of water at a temperature of 90°. Train with one stem, not stopping until the plant has run two-thirds the distance allotted to it, and then take out its point. Remove every alternate lateral; if those retained do not show fruit at the second or third joint pinch out their points, and fruit will show freely upon the secondary laterals. Supply water as required to prevent flagging, and maintain a genial condition of the atmosphere by damping available surfaces in the morning, and syringing about 3.30 P.M. Ventilate from 75°, maintaining the temperature at 80° to 85° with sun heat through the day, closing at 80°, but do not allow the temperature to advance much above 90°. When the flowers are expanding discontinue syringing, damping the house in the morning and early afternoon of bright days. When three or four pistillate flowers are expanded fertilise them, stopping the shoots one joint beyond the fruit, and continue this daily until four to six fruits on a plant are set and swelling, then reduce the fruits to the number required: very strong plants may carry six, and proportionately less according to their vigour. Very little growth will be made if the plants have a full crop, but all laterals must be kept closely stopped. Every encouragement must now be given to swelling-off the crop, pursuing the treatment as advised prior to setting, watering occasionally with tepid liquid manure. Support should be given to the fruit in good time, and when ripening has commenced supply water only to prevent flagging, and omit the syringing. The above *résumé* may be useful for those having houses or pits which can be put to this use.

*Cucumbers.*—The nights have been cold, and necessitated the continuance of fires; but the days have been bright, requiring great care in ventilating. Morning syringing is not desirable, but abundant atmospheric moisture must be secured by damping, and the syringing should be done early in the afternoon. Careful attention will require to be given to shading, so as to prevent flagging, and yet employ it no more than is absolutely necessary. Copious supplies of liquid manure will be required, and surface-rooting should be encouraged by removing any loose surface soil and supplying fresh lumpy soil. Remove exhausted growths, stopping the shoots one or two joints beyond the fruit, and thin where necessary to prevent overcrowding. Night coverings will still be necessary for pits and frames, and lining to the sides of the frames, &c., for the maintenance of the top heat. Any frames or pits at liberty may have the beds renovated for young Cucumber plants, which will afford fruit through the summer.

#### PLANT HOUSES.

*Stove.*—*Tabernaemontanas* are growing freely, and should receive more water. These useful flowering plants are often grown in too much heat, as they do not require so much as *Ixoras*. The latter are producing their flowers, and should if required for conservatory decoration be prepared for the change by affording them all the light possible with moderate ventilation. *Bougainvillea glabra* intended for the conservatory should be moved from the stove before the first flowers have attained their full size. *Allamandas* may be employed in a similar manner. Other stove plants intended for conservatory decoration or exhibition should be gradually subjected for a few days to a little lower temperature with plenty of light. Any that have been plunged in bottom heat must be removed from it some weeks before they are taken from the stove, but when required for such purposes or for affording cut flowers the plants ought not to be placed in bottom heat. *Dracenas* grown in quantity for conservatory or room decoration should be transferred to cooler quarters. See that they are kept free of red spider, which is a serious disfigurement to the foliage if its progress is not arrested. Tuberous *Begonias* that were started early and grown on in this structure should also be gradually hardened, similar remarks applying to *Gloxinias*. Seedlings of either of these plants that were sown early should be potted singly, grown on in a genial temperature near the glass with shade from powerful sun, and if well attended to in summer they will make fine decorative plants by autumn. Small specimens of such plants as *Allamandas*, *Bougainvilleas*, *Clerodendrons*, *Gardenias*, and other free-growing plants that were potted early and have filled the pots with roots should be shifted into pots about two sizes larger, accord-

ing to the vigour of the plants and the purpose they are intended for. All twining stove plants and climbers should be examined once a week, so as to keep their young shoots from becoming entangled.

*Celosia pyramidalis* vars. are fine for summer and autumn decoration of the conservatory, and up to the end of the year in warmer quarters. Sow in gentle heat, and pot off the plants obtained singly when large enough; keep them rather close until established, when they will succeed in an intermediate temperature. Pinch out the first flowers, and keep the plants near the glass to induce a sturdy habit. Syringe to keep down red spider. Pots 6 or 7 inches in diameter will be large enough for useful decorative plants. Whenever aphides or thrips are seen the house should be fumigated.

*Ferns.*—Such useful Ferns as *Adiantum cuneatum*, *A. formosum*, *A. pubescens*, *A. gracillimum*, *Pteris serrulata*, *P. umbrosa*, *Lomarias*, &c., may be grown in quantity for the conservatory, decorative purposes, and cutting. Continue potting young plants, which are usually abundant in ferneries and stoves. Place the plants in small pots, and when established let them have a position where they will make stout growth; for though the fronds are paler in colour, if grown in plenty of light they are much more enduring, lasting double the time that those grown in a shaded and close atmosphere do. By attending to potting the seedlings two or three times a year a stock will be maintained of a size suitable for decoration or shifting on. Most Ferns are in active growth, and require frequent and copious supplies of water. Any in small pots for the size of the plants may have liquid manure once a week, and if care be taken to have it clear and weak it will not only improve the size of the fronds but enable a fine growth to be made without increasing the size of the pots. Tree Ferns employed to decorate structures where the temperature is cooler and drier than the fernery must not be removed whilst making the growth, or the fronds will be injured.

#### NOTES ON VILLA AND SUBURBAN GARDENING.

##### KITCHEN GARDEN.

THE cold bright dry weather recently experienced, although unfavourable to the active growth of vegetables, has offered good opportunities for the extermination of all weeds, and thereby saving much labour that would otherwise be necessary. Frequent hoeings, besides destroying weeds, are very beneficial to the advancing crops, and will also to a certain extent prevent the soil cracking. Where the seedling Broccoli, Kales, Savoys, and other similar vegetables have been destroyed by insect pests (and this has happened to two sowings in some localities), it is advisable to sow the remainder of the seed in boxes, and place them in frames or under handlights in the open. The plants thus obtained must be pricked out when in rough leaf and before becoming drawn, choosing showery weather for the operation, and giving the preference to a border the soil of which is fine and light. The plants of this sowing may be pricked out about 4 inches apart each way, and as they can then be lifted with a good ball of earth, not much time will be lost. Treat in the same way any plants that are crowded either in boxes or seed beds.

Peas for the late crops ought now to be sown, Hair's Dwarf Mammoth, Veitch's Perfection, and Premier being suitable varieties. Excellent tall late Peas are *Ne Plus Ultra*, *British Queen*, and *Williams' Emperor of the Marrows*, giving the preference to the first mentioned. In dry localities, or where the soil is poor and thin, it is advisable to prepare trenches as for Celery. These may be 18 inches wide. The first spit of soil being thrown on each side, a liberal quantity of good manure is forked into the bottom spit, half of the first spit is returned to the trench; the whole is then made firm, the seed sown and covered with more of the soil first thrown out. The Peas thus have a greater depth of soil and abundance of manure to root in, and being in a trench can be readily and heavily watered as required. In some gardens by no other means can the attacks of mildew be prevented.

Lettuces ought now to be sown where they are to remain. By sowing frequently on well-enriched ground and thinning early and



freely the plants are less liable to run to seed, besides being of very superior quality. The Paris White Cos or any of its varieties are most suitable.

Plants of Brussels Sprouts and Veitch's Autumn Cauliflowers that were raised under glass and pricked out in the open or in frames should, when of good size, be permanently planted. Both are valuable crops, and the former especially cannot well be put out too early. The Cauliflowers may be planted among the widely planted early Potatoes, but the Sprouts deserve a clear quarter, which should be tolerably rich, deeply dug, and then trodden firm. The rows may be placed 3 feet apart and the plants at least 2 feet asunder in the rows, it being a great mistake to crowd them. When planting any of the Brassicas always render the soil firm about them; they will more readily become established.

If Strawberries have not already been mulched with fresh manure it should no longer be neglected. Finish off with a little clean litter for the fruit to rest on. Where manure or straw cannot be obtained the grass from mowings may be substituted; it, however, rather encourages the depredations of slugs. The plants in newly made beds ought not to be allowed to bear fruit unless they are strong and well established. Rows of excellent Lettuces may be grown between them, and the Strawberries next season will well repay for the self-denial.

#### VINERIES.

Vines in cool houses are now making rapid progress, and will require close attention. Crowding-in the growth and overcropping are mistakes frequently made by amateurs, which not only detracts from the value of the current crop but also gradually impairs the Vine's constitution. If the main rods are evenly furnished with spurs, one lateral only should be retained on each spur, selecting the strongest and pulling out the remainder. If the rods are thick stop the retained laterals one joint beyond the bunches; but if the rods are a good distance apart, say 4 feet, then stop at the second joint beyond the bunches. When the growth has stiffened somewhat will be the time to gradually tie down the laterals to the wires. As there is a danger of these being twisted off, especially if strong and the manipulator inexperienced, it is advisable to delay the final disbud-ding till the tying-down is safely accomplished, which of course gives a second chance. Where the house is not yet furnished the leading growth of the rods must be carefully trained in the required direction, pinching off tendrils and stopping the lateral growths to one joint as required. These leading shoots should not be fruited, and later on it will be advisable in the case of prolific Vines to reduce the number of bunches.

As most of the bedding plants will now be gradually shifted out of these structures the temperature may be increased, which will much benefit the Vines, assist to develop the bunches, and also quicken the growth of any heat-loving plants that may be grown for summer decoration. No very regular temperature can be maintained without fire heat, neither is it necessary. Close the ventilators early, say at 4 P.M., at which time it may be done safely, and freely syringe the floors, walls, and staging, and also the Vines if red spider be troublesome, using perfectly clear and tepid water, and by these means create a warm temperature and humid atmosphere, which will last through the night. On clear mornings open early, or the foliage will be burnt. Open when the thermometer has run up to near 70°, and only admit sufficient air to keep it near to that temperature. The roots must not be neglected, as so much depends on them. Inside borders especially require frequent and heavy watering, as well as a mulching of half-decayed manure. The latter should be given to the outside borders, where it will serve to enrich the soil, besides encouraging surface-rooting. If considered unsightly lightly cover with garden soil. These borders ought not to be occupied with either flowers or vegetables, all these tending to drive the Vine roots down into the border—a very frequent cause of the fruit shanking, especially when the borders are badly drained. If conspicuously situated an edging of either Verbenas or Petunias will help to relieve the bare appearance of the border, and will not much interfere with administering heavy supplies of liquid manure later in the season.

## THE BEE-KEEPER.

### REMOVING STOCKS AND ARRANGING AN APIARY.

EVERY member of a newly hived natural swarm before starting off in quest of booty carefully notes its position and bearings, flying for some seconds with its head towards the alighting board, and in like manner every young bee as it commences the duties of life outside the hive makes itself acquainted with its position. But this knowledge once gained suffices, and in all subsequent excursions it simply sallies forth, returning with unerring accuracy to the point left. The removal of the hive only two or three paces will often altogether prevent the finding of it, when the insects fly helpless, homeless, and lost around the too-well remembered spot to die. This power which the bee possesses of imprinting locality upon its little brain (cephalic ganglion) is essential to its well-being, as in normal conditions the proper hive must be entered or the life of the mistaking intruder would pay the forfeit. But the bee-keeper is sometimes forced as a consequence to allow notions of order and symmetry to continue to be violated, for in some circumstances we know of no certain means by which stocks can be arranged without inconvenience and loss; but on the other hand there are conditions which being observed make the operation safe, although the attached trouble is often considerable. Let us first, then, endeavour to explain the best plans for moving hives, and then point out the principles which should guide us in placing them.

As regards moving stocks, the case which presents the least difficulty is that in which a removal of a short distance may be accomplished in stages. If several stocks stand upon the front edge of a lawn, and it is desired to place them at the back of it, all in the evening may be drawn 1 or 2 yards nearer to their future resting place. The succeeding day being fine, the bees flying freely will easily find their new position, to which they next day will return to again discover their hives a yard or two on the march, and so by degrees they can be without any loss drawn to the spot of the bee-keeper's selection. If the hives stand in a line the line can only be moved very short stages in the direction of its length, or the second hive would come quite into the position before held by the first, and so on for the rest. Much confusion would certainly follow this, while the encasement of queens from numerous mistakes would be quite likely. If, however, the line of hives were moved backwards, each stock retreating as it were from its own alighting board, then 2 yards at each stage might be ventured on. If many hives stand together in the centre of an open space, so that the insect village is the general guide to the returning foragers, it is clear that all may be moved many yards if only the mutual relations of position be duly preserved.

But it is the rule that re-arrangement cannot be effected in this simple manner. A road, a river, a shrubbery stands between the present and future position, or the change must be made at once; quarter day is arriving, and the bee-keeper's own removal to a new spot not far enough away to prevent the bees coming back necessitates some device for their safety. The only perfectly reliable plan is to send the whole of the colonies to a new position a mile or a mile and a half away, and by leaving them about three weeks, they will probably forget the former station. They may now be brought home and placed like natural swarms wherever we elect; but inconvenience and expense make this plan unacceptable, while every other yet suggested has some drawback. For instance: If in the evening the hives be closed with perforated zinc (taking care that ample ventilation be given), and then placed in a darkened and cool room and allowed to remain three or four days, the bees will become so demoralised by the imprisonment that they will note their position when freed on their new stands and will almost invariably return to them.

Less damage would be caused to the stocks by merely moving them to their new position early in the morning, smoking them well and then driving the skeps, throwing the bees down in the front of their hives on the new stand and letting them run in as a natural swarm. The bees from frame hives would simply be shaken on to a board at their hive door. Before attempting this plan, which is not reported as being with all stocks quite successful, it would be well to gather the hives into little closely placed lots of three or four each, and at the time of removal stand a hive with a comb containing brood on the vacated spot to gather up the stragglers, which may be brought home in the evening and started as a nucleus or swarm according to number. The fright the bees have already experienced in having lost their home will add to their caution, and all, or nearly all, will remain.

A device more simple than any of the foregoing is sometimes quite successful, and consists in placing a wide cover in front of the hive door so as to cut off the daylight within, and yet give the bees entrance and exit between the back face of the cover and the front of the hive. When the bees have become thoroughly accustomed to this, take the stock to its new quarters in the morning, remove the cover, and smoke well. Each bee before leaving the hive learns the entrance of daylight and the general outlook that the stand is changed, and notes the station in consequence. But the principles which should guide us in placing our stocks now demand attention, for undoubtedly the desire to move the bees has often for its origin that love of regularity and trimness which may be most prejudicial to the success of our operations. Some years since I was asked to visit in the south of England an apiary, the property of a wealthy gentleman who had, notwithstanding the advantages of superior appliances, failed to secure results at all equal to those which seemed to fall without effort to his own tenantry, amongst whom, to his great horror, the sulphur-pit reigned supreme as the only means of clearing bees from the honey stocks. The owner, a man apparently of most orderly mind, introduced me to his bees, which were housed in a straight line of hives all precisely alike in shape, size, and colour, faultlessly clean, and arranged upon substantial pedestals with stone tops, all of which were accurately equidistant with about 2 feet interspace. The hives, moreover, were backed by a long regular wall which formed the side of a kitchen garden, while the trees nailed against this seemed especially trimmed to disprove the assertion sometimes made that no two things in nature are alike. In front ran a path wearying by its length and as straight as an arrow. When we first caught sight of the apiary it looked not unlike a huge brown caterpillar, each segment of the body of which was represented by a stock, and I recognised at once some reason for the failure complained of, for had all been devised with an idea of puzzling and confusing the bees the arrangement could have been pronounced perfect. It is obvious enough that the dead similarity in hives and surroundings which I have just described must make the task of each worker in selecting its own proper home so difficult that uniform success in it is not attainable, and as a consequence an unusual and dangerous interchanging of inhabitants amongst the hives is continually going on, which will lead from well-understood causes to robbing and disaster. But the more serious danger is not with the workers but with the young queens. These, when they leave the hive for the purpose of meeting the drone, fly in and out several times and mark the station with great care; but in the circumstances upon which I have animadverted, and indeed in many apiaries, is not the picking-out of the right hive at the return of the expectant mother an exploit almost as difficult as the selection of a given note on the keyboard of a pianoforte? and should the bewildered insect, now the hope and promise of the colony, through our misguided notions enter the wrong hive she is immediately butchered, and the stock to which she belonged must, unless bee-mastership come to the rescue, die out or fall a prey to robbers. Let us, then, avoid long lines of similar hives, unless characteristic landmarks, such as trees or shrubs, rise amongst them. Let variety in colour if not in form come to our aid, and we shall then know less of robbing, while our young queens will not suddenly and mysteriously vanish.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

### THE IRISH COTTAGERS' HIVE.

BEING very much impressed with the novelty of Mr. Lyon's hive for cottagers I endeavoured to construct one with the following results. I obtained two boxes from my grocer, which are sent to this country containing soap; they are made of pine, the sides being over half an inch thick, and the ends are nearly an inch thick; they have a bottom and lid, the joints being secured. One I prepared for a body box and the other for a cover. The hive when finished with the cover on resembles Abbott's "Irish hive," being shed-roofed. The body box holds nine frames and a dummy; I have them on zinc slides, with distance pins, which are shoemaker's brass tacks of the largest size. This only cost me 1s. 2d., but had I paid for all the materials I should have had my hive for 2s. 2d. To encourage others I may say that my hive is superior in utility to some hives that cost 10s. As the frames rest on the ends, the first thing I had to do was to take part of one of the lids to make two pieces to raise the two sides high enough for the zinc slides and frames on the ends, this being done by nailing them on. I nailed the zinc on with shoemaker's rivets, and a very thin piece is nailed on to cover the ends of the frames. These are all of one scantling, being cut out of a half-inch board of clean spruce 8 feet long by 9½ inches wide. This

board only costs 5d. retail. With a lock saw I cut the frames up the centre for comb foundation; I cut a 5-inch slit in the end for entrance, with a 4-inch alight board in the centre, and sloped off at the ends and nailed it to the end. The hive when uncovered has the appearance of one sold by Messrs. Neighbours. The sides project half an inch; the piece to cover the frame ends and the light board is exactly the same shape. The cover is the same size as the body box with plinths all round to go down over; it is the same height at front, but slopes 3 inches at the back, having two bars on the roof made from a part of itself, giving it quite a neat appearance. Two coats of green paint with oak varnish covers and beautifies all.—COMBER, *Co. Down.*

### TRADE CATALOGUES RECEIVED.

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Plants, including Novelties for 1881 (Illustrated), and List of Bedding Plants.*

William Bull, King's Road, Chelsea.—*List of New and Beautiful Plants (Illustrated).*

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Bedding and Border Plants.*

R. Pennell & Son, Lincoln.—*Catalogue of Miscellaneous Plants.*

J. Linden, Ghent, Belgium.—*Illustrated Catalogue of New and Rare Plants.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

**Seedling Pansies** (*W. J. M.*).—Although the flowers were sent in a tin box and were packed in moss the latter was quite dry on arrival, and the Pansies were so much shrivelled that it was quite impossible for anyone to form an estimate of their merits. The dried petals of the dark self appear to possess great substance, but as to its form and colour we are wholly without the means of forming an opinion.

**The Gardeners' Royal Benevolent Society** (*J. L. W.*).—The object of the Society is the granting of substantial annuities to gardeners who are incapacitated by age or infirmity from following their vocation, also to widows of gardeners who have been left without means of support. The annuities are granted for life, and many recipients are now enjoying them. The number of annuitants elected yearly depends on the funds at the disposal of the Committee, and a most laudable endeavour is being made to increase those funds. You are quite eligible to become a subscriber and annuitant, and you can obtain all particulars you need by writing to the Secretary, E. R. Cutler, Esq., 14, Tavistock Row, Covent Garden, London.

**Bulbs in Lawn** (*Mrs. Wilks*).—Your gardener is quite right; the lawn must not be moved until the foliage of the Crocuses and Snowdrops shows signs of decay; in fact, it should commence withering before it is cut off. Your display of flowers next year depends wholly on preserving the foliage fresh and healthy as long as possible. To remove it now would seriously weaken the bulbs.

**Warts on Vine Leaves—Grapes Blistered** (*Bishops Waltham*).—Although your general treatment is correct we should admit air earlier, immediately the temperature commences rising in the morning. On some morning, perhaps a Sunday morning, the house has been too long closed, and then too much air has been admitted at once, causing too rapid evaporation from the leaves and fruit. We cannot inform you how often the Vine border should be watered, as this depends so much on the weather; and further, you do not inform us whether the roots are in inside or outside borders. We can only advise you to apply water copiously when it is required, so that every particle of soil is moistened; surface sprinklings are dangerous when applied with the object of conveying moisture to the roots, though not objectionable for promoting a genial atmosphere during the afternoons of bright days.

**Double Daisies** (*M. H.*).—When the flowers "turn single" the fact indicates either poverty of soil or neglect in dividing the plants. After flowering has ceased the plants should be taken up and divided, each portion having two or three crowns, to be planted 6 or 8 inches apart in rows a foot asunder. The soil for the nursery bed so formed should be enriched with manure, and the position cool and shaded, but not the shade afforded by overhanging trees; a border on the north side of a wall or building is very suitable for Daisies in summer. If the soil is sufficiently fertile for growing good Lettuces it will grow the Daisies well. The plants should be watered copiously during hot weather, and the ground kept free from weeds. We have grown thousands of Daisies in the manner described, and have never failed in having strong plants and large double flowers.

**Water Melons** (*A Fourteen-years Subscriber*).—They require practically the same treatment as ordinary Melons, and may be grown in houses or frames. We have grown them successfully by having strong plants ready for planting in May, by which time the frames that had been employed for forcing Potatoes were at liberty. The soil was removed and a few barrowfuls of fermenting materials mixed with the old bed, the soil replaced, and when gently warmed the Melons were planted. They were then watered, pruned, and ventilated as



for ordinary Melons, and in due time fine fruits ripened; but they were not by any means equal in flavour to the best named varieties of Melons grown under precisely the same treatment. If seeds are sown at once in heat, and strong plants raised ready for planting in frames about the middle of June, you may with good cultural attention expect fruit in the autumn. You cannot expect a satisfactory crop in the open ground in your district.

**Flower Garden Plans** (*R. Parker*).—Some numbers of this Journal containing plans have been forwarded to you. Further information with additional plans are contained in the Manual of Flower Gardening, published at this office, price 4d., or post free 4½d.

**Raising Bulbs from Seeds** (*A. K.*).—Prepare some light sandy soil and place it in well-drained pots or pans, which should be plunged in moderate heat under bell-glasses or a small propagating frame after the seeds have been sown. Do not allow the soil to become dry, and on the other hand supply water judiciously, as the seeds are very liable to decay in too much moisture. The time that will elapse before the plants produce flowers depends so much upon the treatment they receive that it cannot be determined; it may vary from two to four years. But the chief point is to secure the thorough maturation of the bulbs each season after growth is completed; this should be effected by withholding water and freely exposing the plants to the sun.

**Tacsonia not Flowering** (*W. M.*).—As you say the plant is in excellent health the non-production of flowers may be due to excessive luxuriance. Thin the plant out well, shortening all the strongest shoots, and if you have been supplying liquid manure discontinue the practice for a time, only affording sufficient water to prevent the leaves drooping. Is the position the plant occupies too shaded or damp? Plants raised from seed do not flower so freely as those raised from cuttings.

**Peach Growths Injured** (*A. Young Gardener*).—Assuming that all the trees are in the same house and border, we are unable to account for the injury to the growths of one tree except on the supposition that there are lenses in the glass and the growths have been scorched by the sun; or if this is not the cause of the injury, it may be the result of a deficiency of calcareous matter in the soil. The remedy for this is to remove a good portion of the existing soil and add fresh loam containing a sixth part of lime rubbish or chalk, the soil to be made very firm. The growth would then be more short-jointed and firmer than appears to be the case at present, and the tree would be in a better bearing state.

**Heating** (*W. F.*).—We think you have misapprehended the nature and object of the system to which you refer, and of which you do not state you have had practical experience. For certain purposes of heating it is excellent, for others it is not needed. No form of apparatus is the best for all purposes and positions. We will make inquiries respecting the other mode of heating to which you refer, and possibly inspect it, the excellent horticulturist whom you name being well known to us.

**See-ling Gloxinias** (*H. B.*).—The superior forms of Gloxinias that are now certificated by the leading authorities are so fine that many that are sent us as good from different parts of the country are small and inferior in comparison; yours, however, do not come under this category, for the flowers are large, of good substance, and the colours are pleasing. But although we pronounce the varieties worthy of preservation, we doubt if certificates would be awarded to any of them by the Floral Committee of the Royal Horticultural Society; still your flowers are very good.

**Polyanthuses** (*W. C.*).—The flowers you have sent represent a great variety of double and single forms, most of which are effective border flowers, while some are more curious than beautiful. The laced flowers have a rather clouded appearance, the colours not being defined with sufficient clearness to meet the approval of advanced florists. The double Primrose is very similar to one that was certificated last week, and is a good variety.

**Seedling Pelargonium** (*T. Canary*).—A single pip and leaf are quite insufficient for forming an estimate of the merits of a Zonal Pelargonium, the habit of the plant, size of trusses, and freedom of flowering being essential properties that a variety must possess to be regarded as superior. All we can say is, the colour of your flower is rich and the petals well formed and of good substance, but we are acquainted with varieties similar in colour, although yours may be distinct from them.

**Origin of Pelargonium Mrs. Pollock** (*J. S. B.*).—This beautiful Tricolor Pelargonium is one of the many seedlings that have been raised by Mr. P. Grieve, who gives 1858 as the date when Mrs. Pollock was obtained, and he thus described the parentage of the variety in the issue of this Journal of May 9th, 1867:—"The seed-bearing parent of Mrs. Pollock was a variety called Emperor of the French, and the pollen parent Gold Pheasant. The seed parent of Gold Pheasant was also Emperor of the French, and the pollen parent Golden Tom Thumb. The seed parent of Golden Tom Thumb was an old variety called Cottage Maid, and the pollen parent Golden Chain. The seed parent of Emperor of the French was Cerise Unique, and the pollen parent was Attraction. The result of this cross was three distinct varieties produced on one plant—viz., Emperor of the French, Empress of the French (a marbled-stemmed variety like Cerise Unique), and the Silver Tricolor variety called Rainbow." It may be further mentioned that the varieties Cerise Unique and Attraction were raised by Mr. Kinghorn, and the latter is said to have been the first Silver Tricolor Pelargonium produced.

**Plants Unhealthy—Select Varieties** (*Pelargonium*).—Had you sent us a portion of one of the stems that "turn black" it would have enabled us to arrive at some conclusion on the matter; at present we are absolutely without any data to guide us in forming an opinion as to the cause of injury. The Calceolarias of which the "lower leaves turn soft" have received a check at the roots, probably by neglect in watering, or perhaps improper watering. We have seen many plants similar to yours that have been regularly watered; but the very regularity of watering has been deceptive, for while the surface soil has been moist enough that at the bottom of the pots has been dry. This is a greater source of failure than perhaps any other operation in the routine of plant culture. The soil in which Calceolarias are growing must always be moist, and the plants usually thrive much better when the pots are stood on slates or moist ashes than on the dry shelves of a stage. *Hoya carnosa* will grow and flower well in a greenhouse where the temperature during the winter does not fall below 45°. Let your plant have all the sun possible, keep the foliage clean, and water freely yet judiciously until the middle of August, when the supply should be gradually reduced, keeping the soil comparatively dry, yet by no means dust dry, throughout the winter. Hexagon netting placed over the ventilators will exclude many sooty particles that are injurious to plants, and will not materially prevent the admission of fresh air. You will find it advantageous to use the syringe regularly in keeping the foliage clean, and

without cleanliness your plants cannot be kept healthy. *Six Good Show Pelargoniums* are—Cicely, Artist, Purple Gem, Ruth, Prince Leopold, and Charles Turner; *Six Decorative Varieties*—Duchess of Bedford, Mermerus, Dr. Masters, Queen Victoria, Rubens, and Beauty of Oxtou; *Zonals*—Commander-in-Chief, Livingstone, Henry Jacoby, Miss Hamilton, Fanny Catlin, and Jeanne d'Arc. *Fuchsias*—Lord Falmonth, Model, Improvement, Beauty of Trowbridge, Avalanche, and Mrs. Cannell.

**Names of Plants** (*W. M.*).—The pink flower is *Anomatheca cruenta*; the orange flower is *Diplacus glutinosus*, and the yellow flower is a *Verbascum*, but the fragments were insufficient to enable the specific name to be determined. (*Jones & Son*).—Very much withered, but it is probably *Phlox subulata*. (*E. E. W.*).—*Euphorbia amygdaloides*. If you only want a handbook of the British flora there is a cheap and reliable work published at this office which would suit you. It is *The Handbook of British Plants*, by Notcutt, price 3s. 6d.; and if you add to this Bentham's *Illustrations of the British Flora* you will find figures of the several plants that are referred to in the other work. Bentham's book is published by Lovell Reeve, and is not costly. If you require a work with coloured illustrations the one you name will answer your purpose. (*S. B. & T. H.*).—Orchid flowers require very careful packing, as they are not only very liable to shrivel but are frequently crushed in transit through the post. A small tin box with a little damp moss as a packing medium would insure the blooms arriving in a recognisable condition, but match boxes and others made of thin cardboard are quite useless. (*A Reader*).—1, *Doronicum caucasicum*; 2, *Ruscus racemosus*. (*G. G.*).—1, insufficient; 2, *Pyrus amygdaliformis*; 3, *Symphoricarpos racemosus*. (*B. J.*).—*Oncidium concolor*.

**Removing Stocks** (*H. B.*).—You will find the information you require in an article published in the present issue.

**Hive Construction, Cork-packed Hives, &c.** (*N. Howitt, Croydon*).—The query you submit respecting hive construction shall receive early attention, but it cannot be answered usefully without three or four woodcuts. Careful reading of the article in our issue of March 24th will give you much that you require, while Mr. Cheshire will be happy to show you cork-packed hives at his apiary if you previously make an appointment with him, but Mr. Cheshire does not deal in hives as some of our correspondents have erroneously supposed. The super tray or rack requires covering with some non-conductive cover, but cork packing would be here alike inconvenient and unnecessary. It is not only possible to keep hives as warm with distance tacks as with broad shoulders, but broad shoulders render it impossible to make the hive so non-conductive as with enclosed frame ends. The ease of manipulation is greatly against the broad-shouldered frames, as such cannot be moved without a most irritating wrench and jar which does much to set the bees about the operator's ears. Your last query is practically answered in a reply to another correspondent in this issue, which see.

**Flat-bottomed Foundation—Feeding Bees with Honey** (*H. F.*).—The maker to whom you refer supplies a foundation in which the two faces are not kept in mutual relation. Feeding with honey which has been removed by the extractor in order that sections may be filled will not pay, with one exception—viz., if you have at the close of the season a residue of sections unfinished, and which cannot be finished unless feeding be resorted to, it will pay to feed extracted honey to get them capped and in condition for the market. Of course in this case break up the comb of the sections (as they cannot satisfactorily be kept through the winter), and so bring down the value of their contents to that of extracted honey, or extract from store combs and market your comb honey. Although clearly the latter course here is the right one, yet the waste is so considerable that for bulk the sale of the extracted honey as such is the more remunerative.

**Section Boxes in Rear of Hive—Frame Across Entrance—Sections for Woodbury Frame** (*Idem*).—We do not use sections in rear of hive except where the frames are hung across the entrance, and even then we think the greatly increased labour of the plan is in no way compensated. The most advanced and largest honey producers of America are very much of the same opinion. Comb is perhaps built more quickly at the rear of the hive, but it is not so promptly capped, while it is much more liable to be stained by pollen. We have frames across the entrance in some of our hives. We think it assists weak lots in winter, but it increases the risk from robbing. Six of the 1 lb. section boxes 4½ each way would fit a hive taking Woodbury frames.

**Foul Brood—Space Between Frames and Bottom Board of Hive** (*D.*).—Foul brood may exist in a hive without causing any very strong smell to be emitted. In its earlier stages the smell is often of an acid character, because there is probably present in the saccharine matter fed to the grubs that kind of fermentation known as lactic, by which lactic acid, the acid of sour milk, is produced. As the disease progresses decomposition of the bodies of the larvae gives origin to a smell more akin to that of ordinary putrefaction, faint and nauseous, and quite unlike the odour of a healthy stock. The only certain guide is to examine the combs, when, if many covers of brood cells are found pierced irregularly, while here and there the brownish residue of decayed grubs is seen, you have the evidence of the advanced condition of the pest. This subject has been fully treated in back numbers. Consult those of June 26th, October 2nd and 9th, 1880. No book has, so far as we know, been written by Mr. Abbott. We suppose you refer to "Modern Bee-keeping," the author of which is Mr. Cheshire, who wrote it gratuitously for the Bee-keepers' Association, especially to assist cottagers. Bees when crowded build comb in any space which approaches three-eighths of an inch, while in less than a quarter of an inch they are likely to insert propolis to stop the gap. Distances standing between these the bees leave open and use as passage way. The bottom bar of frames should therefore be a full quarter from the floorboard, which gives the bees ample room, as they can pass through three-sixteenths easily, while openings of five-thirty-two inch will not stop them.

**Removing a Section Tray—Handling Bees—"Doubling"** (*Buzz*).—A super or section tray or rack may be removed during the time of its filling without much inconvenience; and if the space allowed to the queen at the time the supers were put on was not sufficient to keep her going, it may be very wise to make the attempt in order to add one or two empty combs or sheets of foundation in the hive centre. This is one of the most reliable means of stopping swarming. You ask whether handling bees tends to improve their temper. The answer as we take it must depend upon the nature of the handling. If bees are so interfered with as to vex them sorely we imagine that handling makes them the more irritable. Quinby says that he has experienced that dosing with tobacco smoke makes them resent every new interference the more savagely; while Langstroth declares that opening a hive and sprinkling with syrup will, if persevered in, cause them to accept the hive opening as the prelude to a sweet shower, which they await with the gratitude which is said to be a sense of favours to come. This just accords with our experience. Our own bees are



scarcely ever angry. Yesterday we made an artificial swarm, shaking all the bees from their combs, inserted a queen from a nucleus, and reseeded the stock from another without any bees making any attempt upon our fingers, which we never cover. We lift the combs without jar and move quite gently amongst them. If they show temper we with smoker in hand tell them we are master, and go on quietly as before. We often wear a veil when operating amongst our hives, as they stand closely and bees are likely to get down the neck. Doubling consists in shaking a swarm of all the bees from some stock and placing all the combs of brood in an upper storey—i.e., a second hive without floorboard, which is now put over a strong colony. The bees hatch out and give the stock, which now possesses the progeny of two queens, an enormous population. They made the upper hive their super. Its combs are tough, as they have been used for breeding, and are therefore admirably adapted for the extractor. In fine seasons and good districts immense yields have in this way been obtained. A knowledge of the locality so far as the exact time of its greatest honey glut is desirable, as this should determine the best moment for doubling. In districts where Limes and Clover are found even in moderate quantity the harvests may be said to be two—May and the beginning of June (orchard and fruit crop honey), and early in July to near its end. Where Heather is found the flow continues till far into September. The doubling should be so timed as to get the brood hatched by the time extracting should begin. Two or three brood combs from three or four stocks may be taken instead of all from one if it be preferred.

## COVENT GARDEN MARKET.—MAY 18.

TRADE during the week and prices have been well maintained all round.

## FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 6 to 4 6	Melons .....	each	7 0 to 10 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Oranges .....	100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches .....	dozen	12 0 20 0
Figs.....	dozen	1 0 12 6	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	1 lb.	0 0 0 0	dessert .....	dozen	0 0 0 0
Cobs.....	1 lb.	0 0 0 0	Pine Apples ..	1 lb.	1 0 2 0
Gooseberries ..	1 sieve	0 0 0 0	Strawberries ..	per lb.	3 0 8 0
Grapes .....	1 lb.	4 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	1 case	12 0 18 0	ditto .....	100	0 0 0 0

## VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	2	0	5 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	100	1	0	1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1	0	2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0	9	1 6	Parsley..... doz. bunches	6	0 0 0 0
Brussels Sprouts..	1 sieve	0	0	0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	100	1	6	2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0	0	3 6	Radishes.... doz. bunches	1 6	2 0 0 0
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.... doz. bunches	2	0	4	0 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 8	Scorzoneria .....	bundle	1 6 0 0
Endive.....	dozen	1	0	2 0	Seakale .....	basket	3 0 3 8
Fennel.....	bunch	0	3	0 0	Shallots .....	1 lb.	0 3 0 0
Garlic.....	1 lb.	0	6	0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 0 0 0



## POULTRY AND PIGEON CHRONICLE.

## CHANNEL ISLAND CATTLE.

As each of the Channel Islands export a large number of dairy cattle it is very important that each of these breeds, called by the name of the island in which they are reared, should be known not only by name but also by certain characteristics of form, colour, and milking capacity. In fact, we readily acknowledge the value of being enabled to discern the many points which are said to characterise the perfect animal; but who is to detect the excellencies, which we readily admit have been wisely acknowledged by the recording of pedigree or their absence? Very few buyers indeed can understand and are able to detect the various points of a choice and valuable Jersey cow. It is, however, a matter of great consequence to buyers of dairy cattle that they should have a direct way of obtaining the animals required without being subject to the statements only of interested dealers in or agents who purchase cattle on commission. Having acted in the latter capacity for many years we have constantly witnessed the ignorance and total inability of buyers in general to understand the points of excellence in the kind of animals they are seeking. Buyers, however, need not be afraid of being deceived if they will use ordinary care and caution by dealing only with the

importer, who will give a written record of the pedigree from the "Herd-book of Jersey Cattle." But what is better than buying of the importer is to purchase at the sales by auction Jersey cattle whose pedigree has been recorded ever since the commencement, the first volume of the "Herd-book" having been published in 1873.

There ought to be no risk in buying at auction animals of guaranteed pedigree bred in this country, and one advantage of so doing is that the animals bred here are inured to the soil and climate whereon they are reared. This leads to a very important point, inasmuch that all newly imported animals suffer in health and constitution more or less during the first year, but this difficulty may be much modified by careful management. The only way for the animals to continue in health and well-doing, and maintain their condition and milking capacity, is that they should be housed in a roomy box about 10 feet by 12 feet at night in spring and autumn, and entirely in winter, except an airing, when the boxes are fresh littered or earthed. We shall not here, however, extend our observations upon the management, having fully explained our system of housing which we recommend for dairy cattle in this Journal on September 16th, 23rd, and 30th, 1880; pages 270, 294, and 314.

The Channel Island cattle consist of Jerseys, Alderneys, and Guernseys; the former and the latter are the breeds chiefly imported. The number of Alderneys bred on the island is very small, and scarcely over one hundred are imported annually into this country. They may be said to be in most respects a modified form of the Guernsey, having been so much lately influenced by the use of Guernsey bulls, which they very much resemble both in form, colour, and richness of milk. The difference between the Jersey and the Guernsey has become very much more marked of late years, particularly in the head, horns, and nose. The Jersey is by far the smaller animal, finer in the bone, and neat in its general appearance. The horns are short and thin, being also more curled or crumpled; the face is finer, with a more docile countenance. The colours which prevail are the silver-grey and the fawn; in fact, these were the colours which prevailed at the London Dairy Show in October last, and it is fashionable now to breed them of a solid colour, the nose and muzzle being black, and surrounded by a mealy-coloured rim. These must be understood as the chief characteristics of the Jersey and the Guernsey; the latter having usually a flesh-coloured nose, and the colour of the body is nearly always marked with patches of white upon a lemon or light red colour. The Alderneys are sometimes black and white, but the pure-bred Guernseys are never so coloured. The Guernseys are also so much larger and coarser in their frame, and generally they carry more flesh, so that when fattened they arrive at a considerable weight—one-third more at least than the Jerseys under the like circumstances of fattening. With respect to other characteristics the Jerseys, since the "Herd-book" has been compiled, have assumed a self colour, an evenness of outline, and in most instances the tongue is required to be black, more particularly in the bulls and the silver-grey cows. We fail to see the point of this, for beyond fashion and a necessity of such a distinction we cannot see the advantage of insisting upon either of the latter points. We are induced to object to them in some instances, for it affects not only the colour of the hair, but the skin and its surface as well, and in these we do not find the yellow colour or scurf of the skin, so characteristic of the capacity of the animal to produce the richest cream and milk.

In regard to the quantity of milk yielded by the different breeds we by no means agree with Mr. John Thornton, who in the late essay, which has just appeared in the "Journal of the Royal Agricultural Society," wherein he says, "The yield of milk, too, is larger in the Guernsey, yet there is little if any difference in the

yield of butter; indeed, some contend that the Jersey will yield more butter." This is not quite satisfactory, when we state from our experience of more than fifty years, and from the general opinion of practical dairymen also, that the Guernsey cow gives less milk in quantity, but extremely rich in cream as compared with the Jersey, the latter giving a larger quantity of milk, yielding far less cream in proportion. In our opinion the error in this case is mistaking the Alderney produce in milk and cream for that of the Guernsey, for it is notorious that the Alderney cows will often give large yields both of milk and butter also, whereas the Guernsey are famous only for the immense yield of butter in proportion to the quantity of milk, and their disposition to carry flesh whilst milking, and fattening readily when dry or barren.

Although we have recommended farmers to purchase pedigree stock, still we prefer to purchase at auctions, because there is generally a record of both bulls or cows when they are descendants of extraordinary milking animals; but not so in the "Herd-book of Jersey Cattle," which simply records the produce of certain cows and bulls. They give no assistance whatever to the uninitiated in discovering the merit or defect of the animal recorded. We have recently inspected some imported Channel Island cattle just arrived; they were in three separate divisions—some Guernseys, some Jerseys, and a few Alderneys, each division containing individual heifers of great merit. One Jersey heifer, however, was beneath the average appearance in outline and correctness of form; but upon examination we pronounced her certainly the most promising as a future dairy cow, and we were immediately informed that she had just been sold to one of our best breeders and judges of Jersey cattle. In this animal we particularly recognised a point which we always insist upon as a necessary accompaniment of first-rate milking capacity—that of a thin spare shoulder top, and a narrow span on the back close behind the shoulder. There is another point which is fast gaining adherents as to its being a guide to good milking quality, and it is concluded that from the ways and forms in which the reversed hair above the back of the udder, now called the escutcheon, grew in these parts, that the good or bad milking properties of animals might be ascertained, even before they calved. We do not, however, consider this as any guide to an ordinary purchaser or dairyman, because even breeders and judges are obliged to study the matter in various ways before they can become qualified to judge by it. It may, therefore, prove a great deception if attempted by the uninitiated.

#### WORK ON THE HOME FARM.

*Horse Labour.*—Horses have lately been continued with good effect on the tillage of the land, not only in finishing off and drilling-in the Mangold seed, and in some cases the Swede seed, but also in the preparation of the land for the various root crops to be seeded later in the season. Only careless or incompetent managers can have Couch left on the fallows for roots, &c., this season. We find that wherever steam power was used at the early period, or, indeed, where the horse power is equal to the work required for all the preparations for root crops and fallowing work for all purposes, it is in a very forward state. Upon the heavy land farms, which have suffered so much on account of several unfavourable seasons, the fallowing ought now to be in a forward state if the plough has been constantly at work. In a dry time, such as we have lately experienced, the strong soils need not be dragged or worked fine by harrows or roller; because if the land is kept rough so much the better, as the weeds are sure to die, and the land will be thoroughly dried and can be worked fine whenever a sufficiency of rain occurs—in fact, after heavy land has been once thoroughly dried in the fallowing process it gives the best promise of future productiveness, especially for the Wheat crop to be sown next autumn. When we refer to the summer management of the root land it is a very different matter, for in that case we should not allow the land to become too dry; for where the land has been cleaned in March and April, then during the May month it should either be seeded for root crops or kept in a fine and moist condition. If the usual growth of weeds appear let the land be scarified and harrowed to destroy them, but not ploughed, because ploughing allows the precious moisture to evaporate and escape. This mode of treatment, even if the season should change to wet weather, as it did last year during the haying season, the plan recommended will be found to be correct. In case any Couch grass is left in the land

after the last ploughing it should not be ploughed again on that account, for we have now a patent self-lifting harrow, which will most effectually comb out the Couch without losing the moisture of the land. Again, in ploughing the Rye stubbles, or after any green crop, the ploughing and working down by harrowing and rolling should all be done simultaneously, and this may also include the drilling of the seed, which must be done as fast as the land is ready during the day. Upon small occupations, or those of several hundred acres, the one-horse drill is very useful indeed, for it will seed the land as fast as many horses' labour will get it ready, and secure the vegetation of the seed in the driest weather if the land is light and free-working.

*Hand Labour.*—At this time of year a man's labour will be continually required to go with the odd horse or horses, for in those cases where much fodder in the green state is supplied to cattle, it should be the work of one man to cut and of another to cart away the Trifolium, Vetches, Clover, or other green crops, such as Lucerne or even meadow grass which may be required for fattening cattle, dairy cows, or any stock in the boxes. We think it desirable, and it has been our own practice for many years, to employ the man who cuts green crops for other stock to cut that also which may be required for the cart horses. It is customary on some farms for the teamsmen to use the scythe and cut all the green fodder required for their horses, but we strongly object to it, as it is too often made the excuse for shortening the horse labour; and it is of special consequence when the horses are required to make a long day or days for completing any important operation within a given time. Live stock will now require a frequent change from grass land to the green crops upon arable land; and grass land should not be fed off too closely, as that paralyses the after growth. It is, however, another matter if the grass is grazed by the dairy cows in irrigated meadows, for in that case it cannot be grazed too closely, and then irrigated for a future crop, either of hay or after feeding. This brings us to the point of considering the importance of cutting grass for hay, especially if it is required for sheep or lambs. If for the latter the earlier the grass is cut and the finer and softer the herbage is the better the hay will be for them, for they under any circumstances cannot eat much in quantity, and therefore it is the more necessary that it should be of the best quality.

#### VARIETIES.

*EGG-EATING.*—We were asked the other day by a friend as to the best cure for egg-eating. We do not know of any certain remedy, but unless the habit be of long standing the following plans may be tried with a fair prospect of success. Boil some eggs hard, scoop out nearly all the inside, fill up with a mixture of mustard and the hottest red pepper you can get, and place these sham eggs in the nests. The culprits will eat them up, and probably conclude that eggs are not so nice as they thought. Or procure some delf nest eggs and shut the egg-eater up in a coop with them, when she will spend all her time in trying ineffectually to eat the sham eggs and thus get tired of the business. Keeping the laying nests very dark, and seeing that the hens have plenty of lime rubbish to peck at, also sometimes aid a cure. If none of these methods succeed, and the hen is not valuable, it is best to kill her before she teaches her companions the bad habit. If the hen be valuable, a nest with a sloping false bottom made in such a way that the egg as soon as laid rolls under the false bottom of the nest out of reach of the hen may be used. The nest is padded so that the egg may sustain no injury, and a nest egg fixed on the false bottom completes the arrangement.

— *THE HATCHING SEASON.*—We hear various accounts of the results of the season's work. Some of our friends, and we regret to say that they are the majority, have doleful tales to tell of their want of success. From hens and incubators alike the return in chickens has been but a small per-centage of the eggs set. Others again are more fortunate, and some few have had extraordinarily successful results. We shall be glad to hear from others of our readers how they have fared.

— *LORD BEACONSFIELD'S PEACOCKS.*—The two favourite Peacocks of the late Lord Beaconsfield were sent on Saturday last from Hughenden Manor to the Queen at Windsor Castle by Her Majesty's desire. After their arrival Her Majesty, Princess Beatrice, and Prince Leopold drove to the Royal aviary to see the birds.

— *AGRICULTURE IN IRELAND.*—We are informed that agricultural prospects have improved greatly within the last two or three days. Heavy showers, with intervals of warm and brilliant sunshine, fell on Saturday and Sunday, and the result has been to give a great stimulus to vegetation. The cereal crops look healthy, but will

probably be later than in average seasons—a remark which applies also, but with still greater force, to the Potato crop.

— **AN ESTIMATE OF AGRICULTURE.**—Agriculture, says the "American Cultivator," is an occupation which can be so contracted as to make the farmer a mere machine, or it can be so expanded as to make him one of the greatest and most intelligent of his race. Pursued as it was in former years, a toil of degraded drudgery, we cannot consider it strange that the farmer was placed at the bottom of the ladder among his fellow men, and that he should have been considered hopelessly unprogressive. But the agriculture of to-day is one of the most intellectual avocations of man; it ennobles and enlarges the intellect as no industry can. The science of agriculture embraces every other science, and the logic of events in connection with the growing and ripening of crops trains the mind to a system of reasoning which cannot be surpassed in many of the professions. In our halls of legislation we hear the pleas of the lawyer, the oratory of the man of letters, yet the arguments of both are frequently demolished by the plain solid common sense of the sturdy farmer. What a pity it is that we do not have more of the latter class of wisdom at our State and national capitals!

— **DAIRY FARMING.**—An imposing array of noble names appears on the prospectus of an association for promoting a knowledge of dairy farms. By means of a limited company it is proposed to buy land, establish a dairy farm and school, and by first-rate tuition inculcate profitable methods of dairy farming in this country. Farmers' sons and others are to be received as apprentices. The concern, it is hoped, will be self-supporting, but the mainspring of the scheme seems to be a desire to improve the profits of English farms. Philanthropy, however, cannot be said to be the only motive, for the vice-presidents whose names appear are landlords; and what improves the condition of farmers can but be of advantage to those to whom farmers pay rent.

— **DEATH OF MR. TOWARD OF OSBORNE.**—Sir John Cowell, by command of the Queen, attended the funeral of the late Mr. Andrew Toward, which took place at Whippingham Church last Thursday. Mr. Toward was for thirty-nine years land steward at Osborne to the Queen and Prince Consort, by whom his long and faithful services were highly valued. He had, under the direction of the Prince Consort, executed the entire laying-out of the grounds, gardens, roads, and plantations at Osborne. He was universally respected, and died in his 87th year at Amherst Lodge, Carisbrook, where Her Majesty had repeatedly visited him, and saw him last two days before she left Osborne. Mr. Toward had been for many years at Bagshot in the service of the late Duke and Duchess of Gloucester.

— **EMIGRATION TO AMERICA.**—A recent telegram from New York states that 6521 immigrants landed there on the 10th instant, the largest number ever received in one day in May. The number landed last week was 16,841, making about 130,000 since January 1st. The Immigration Office is taxed to its utmost capacity, and is unable to furnish the classification of nationalities. A rough estimate places the proportion of Irish at about one-tenth. There is a brisk demand for labour in all parts of the country, and the demand for farm labourers exceeds the supply.

## POULTRY AND PIGEONS

### PRACTICAL SCIENTIFIC BREEDING.

GENERAL PRINCIPLES.

(Continued from page 389.)

A QUESTION often asked by beginners in the poultry yard is this, "How many hens should be allowed to run with each cock?" It is a question which is more easily asked than answered. So much depends upon the season of the year, the age and vitality of the birds, the size of the run, and the particular breed kept, that anything like a general answer is very difficult to frame. It is, however, a matter of such importance that it cannot be overlooked, and we shall endeavour to be as explicit as possible. For very early hatching—that is to say, for the January and February

chickens, we should under ordinary circumstances allow but two hens to the cock in the more sluggish, and four in the more active breeds. As the season advances the number may be doubled in each case. These rules must, however, be departed from if the male bird be either very vigorous or very old, or if the run be very limited or very large. A valuable old bird should be mated with but one or two pullets, and the number should not be increased as the season advances. A very vigorous bird will require a larger number of hens, or those with him will be injured and there will be a failure of chickens. A very limited space, again, will decrease the vitality of the stock, while an unlimited run will have the contrary effect; and both these points must be taken into consideration, and the number of hens increased or decreased accordingly.

We have known instances at farm houses where as many as forty hens have been running with a couple of cocks, and almost every egg hatched; but then the birds were mere mongrels and had an unlimited run, and we should not recommend that in the case of prize-bred poultry more than fifteen hens should under any circumstances be mated up in one yard.

In selecting a breed young fanciers should bear in mind that in these days of close competition it is necessary that birds should have every reasonable advantage in regard to suitable space and locality. Success is often merely a question as to how far in-breeding can be carried without an undue deterioration of the strain. Fowls which thrive best in a large run can no doubt for some time be bred with fair success in a confined space; but when it comes to be a question how long fresh blood can be dispensed with, the man who has ample space for his birds, and whose locality is most suitable for the breed he keeps, has the immense advantage of being able to keep the vitality of his strain at the highest possible point, and thus carry out his plans to their legitimate end without being forced to cross in some foreign and perhaps undesirable element. Every circumstance of space and locality should be carefully considered. The amount of run available, the aspect, the soil, and the nature of the surface, all have their share in success or failure. Dorkings are not found to thrive on a heavy clay soil. The feather-footed sorts are unsuitable for rough or uneven ground, or for long grass. Game and Hamburgs require ample space. Spanish require warmth and a southern aspect. The list might be increased indefinitely, but these instances are enough for our purpose, which is merely to illustrate the statement that the circumstances of the fancier and the necessities of the breed he selects should as far as possible coincide. Much may be done by care and intelligence to supply artificially what is wanting in natural advantages, but it is useless to handicap oneself in a contest, when by the exercise of reasonable foresight an even start may be secured.

One other matter claims a passing notice as exercising an influence upon the vitality of the strain. Whatever be the breed selected the proper housing of the birds is of primary importance. The essentials in this respect are dryness of ground surface, cleanliness, thorough ventilation, and freedom from extreme cold or draught. Nothing so thoroughly undermines the constitutions of fowls as continual standing about on a damp surface, and confinement at night in a close vitiated atmosphere is almost equally detrimental. The larger the covered houses and sheds are the better it will be for the birds, provided that the above points be attended to; but no amount of house room or shedding will compensate for neglect in these particulars. Roup and liver disease follow in the train of wet floors and deficient ventilation; and even though these evils may not develop at the moment, the seeds of them are sown and they bear fruit in after generations.

(To be continued.)

### PRESERVING FOOT FEATHER.

WE have frequently been asked how the feathers which grow on the legs and feet of Sultans, Cochins, and Brahmas can be kept from breaking or wearing, and assuming that ragged appearance which in the show pen contrasts so badly with more perfect foot feathering. To all who keep or contemplate keeping such fowls the subject is of the greatest importance, as in competition good foot feather is a weighty point. Some people have no difficulty in keeping them perfect, others cannot do it without much preparation and care. The whole matter depends on the run. On a hard rough run the foot feather will never be satisfactory, but with smoothness and softness under foot the feathers will always be good. Heavily feathered feet are much more easily kept in condition than scantily furnished feet, and as much feather is the proper thing attention should be devoted to breeding for it. Sand or very fine gravel makes an excellent run for feather-footed fowls, and short grass is equally good.



Sawdust may also be used, but ashes, unless in a very fine powdery state, are bad, as rough sharp ashes cut the feathers quickly. In small confined runs the sand, or whatever may be used, should be 4 inches or more in depth, and it should always be kept loose on the surface. Cleanliness is very desirable in such places. When the droppings adhere to the feathers they soon cling together and form a hard mat, and when in this state they are most easily broken. For this reason fowls in confinement should have their feathers looked to occasionally to guard against accumulation of the kind.

Many will now be beginning to look to the foot feathering of their chickens intended for the autumn exhibitions, and the main thing with them is to have a soft run. Apart from this there is no artificial way of keeping the feathers perfect, but in the kind of run we have indicated they will grow quickly without much danger of being damaged.

Perhaps it may be well to point out that show fowls of these breeds have not the feet feathers always in exhibition trim; but when there are no shows on they are often allowed to run rough, and they are only put on their soft walk a few weeks before being shown, and if there are any broken quills they are generally drawn out to give place to a fresh batch of quick-growing young feathers. Dorkings with gouty feet and feather-legged fowls do well on the same kind of run, softness of the run being advantageous in both cases.—J. MUIR.

#### AMERICAN TURKEYS.

THE Standard recognises six different varieties—the Bronze, Narragansett, White, Black, Buff, and Slate. All of these originated from the North American wild Turkey, and all possess valuable qualities; but on account of its great size the Mammoth Bronze is perhaps the most profitable variety to raise for market. Well-grown males of this variety will weigh from 18 to 22 lbs. alive when six months old, and the hens from 10 to 14 lbs. at the same age. The Bronze Turkeys do not reach maturity until the third year, and we frequently see adult gobblers that weigh anywhere from 35 to 45 lbs., and adult hens that weigh from 18 to 25 lbs.

The main colour of the plumage of the thoroughbred Bronze Turkey is a dark bronze that looks almost black in the shade, but in the sunlight the back and breast glitter like burnished gold. Each feather on the back terminates in a narrow black band which extends across the end. The wing feathers are pencilled evenly across with bars of white or grey, and when the wings are closed the wing-coverts form a broad bronze band. The tail feathers are black, pencilled across with narrow bands of light brown, each feather ending with a broad black band, with an edging of white or grey. Legs are large and strong, dark in young birds, but approaching a pink or flesh colour in adult birds. The hen closely resembles the gobbler, except that the plumage is not so brilliant, and the feathers generally have an edging of white or grey; clear brown or black wings; back of tail clear brown, black, or grey. White feathers in any part of the plumage are counted as disqualifications, and no honest breeder will sell such birds for breeding stock.

The White Turkey, generally called by breeders the White Holland, is not so common as the Bronze variety, and has not yet received the attention at the hands of breeders that its merits demand. The White is not so large as the Bronze variety, but I am inclined to think that this is more the fault of breeders than of the breed. M. T. Kelly of Bloomingdale, Ind., once owned a pair of White Holland Turkeys that were hatched on the first day of July, 1873, and on the first day of December, 1874, weighed 63 lbs. This shows what skill in breeding will do. I am confident that if breeders would take the same pains with the White that they have with the Bronze variety, such weights would not be exceptional.

As table fowls I certainly think that the White Hollands are superior to any other variety. Their flesh is whiter, more tender and juicy, and they look more tempting when dressed than the dark birds. Some breeders claim that the dark-coloured birds are hardier than the white, but such has not been my experience. Other breeders claim that the White Hollands are not so much disposed to ramble as the Bronze, but I never could see much difference in this respect. Turkeys are Turkeys, and so long as any of the wild Turkey nature remains in them they will wander and hide their nests.

The entire plumage of the White Holland Turkey is of a clear snowy white, and this, contrasting beautifully with the rich scarlet of the head and the jet black beard of the male, renders it an object of attraction in the show room and in the poultry yard.

The Narragansett is an old and a popular variety wherever its merits are known. In Southern New England this variety is raised extensively for home consumption and for the city markets. Of late years farmers have crossed this breed with the Bronze, until now these cross-bred birds rival the Bronze in size.

The Narragansetts are generally called a grey bird, but when thoroughbred they should be of a metallic black, each feather ending in a broad, light steel-grey band. Carelessness in breeding has "mixed" the plumage so that in many flocks the feathering is uneven, or splashed with black or white, but they can be bred true to feather. These birds of mixed plumage are not standard birds, and if one cares for looks I should not advise breeding from them.

The Black, Buff, and Slate are smaller varieties than either of those that I have described, and need no particular description, as the name sufficiently indicates the colour. The Slate is sometimes called the "blue" Turkey, and, barring the size, is a good variety.—FANNY FIELD (in *American Prairie Farmer*).

#### PROPERTY IN HOMING PIGEONS.

A DECISION of much interest to Pigeon fanciers was given in the Birmingham County Court on the 9th inst., by Mr. J. Motteram, Q.C., in the case of Stanley v. Birch. The plaintiff claimed £5, the value of an Antwerp Pigeon shot by the defendant while flying over his grounds on its way home to Castle Bromwich from Aston, a place some five or six miles distant, where it had been tossed. His Honour in giving judgment entered into an elaborate review of the legal authorities bearing upon the case, and stated the questions for decision as follows—1, Whether the plaintiff could be said to have a property in the Pigeon, which was admittedly tame and reclaimed; and if so, then, 2, Whether by the act of taking the Pigeon away from its home for the purpose of training it, and there releasing it, the plaintiff lost his property in the bird, and thereby his right to bring the action to recover damages for the killing of it by the defendant—whether, in fact, the Pigeon, in consequence of the plaintiff's act, lost its character of a tame Pigeon and became *feræ naturæ*. His Honour, not without much hesitation and with some doubt, held that there could be property in a Pigeon, and that the mere taking the bird from its home and releasing it for the sole purpose of training it did not amount to an abandonment of the owner's property in the Pigeon. The plaintiff was therefore awarded a verdict for the £5 claimed and costs.

#### OUR LETTER BOX.

**Hops** (J. D., Wills).—The book to which you refer is probably a small work by Mr. Whitehead, entitled "Hops from the Set to the Skylights." It contains full particulars of the culture and preparation of Hops, and is illustrated. It is published by Effingham Wilson & Co., Royal Exchange, London.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.	
1881. May.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.		On grass.
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	8	30.643	57.5	49.0	N.	53.0	60.3	44.8	118.3	38.0	
Mon.	9	30.604	55.6	47.8	N.E.	53.7	61.4	40.2	119.3	33.7	
Tues.	10	30.631	47.4	41.6	N.E.	53.2	57.0	40.0	98.3	34.7	
Wed.	11	30.629	48.2	42.8	N.	51.6	62.7	31.2	108.7	23.8	
Thurs.	12	30.428	57.3	50.3	N.E.	51.8	69.3	37.8	116.8	32.0	
Friday	13	30.220	56.3	50.5	S.	52.7	74.1	41.8	116.4	35.7	
Satur.	14	29.913	55.6	51.0	W.	54.0	69.0	42.5	112.8	36.2	
Means.		30.438	54.0	47.6		52.9	66.1	39.8	112.9	33.4	

#### REMARKS.

8th.—Bright, fine, and warm.  
9th.—Bright and fine, with fresh cold wind.  
10th.—Cool, overcast first part of the day, latter part bright and fine; moonlight evening.  
11th.—Cool, but fine and bright throughout.  
12th.—Fine sunny morning; overcast hazy afternoon; fine evening.  
13th.—Very fine and bright throughout; quite warm.  
14th.—Fair, but rather overcast and hazy.

Mean temperature nearly the same as in the previous week, and not very different from the average for the middle of May; but the range of temperature very great, that of the air being from 31.2° on the morning of the 11th to 74.1° on the afternoon of the 13th. The average daily range was 26.3°. The barometer was very high on the first four days, but fell rapidly on the 13th and 14th. No rain during the week.—G. J. SYMONS.



26th	TH	
27th	F	Quekett Club at 8 P.M.
28th	S	Crystal Palace Horticultural Exhibition.
29th	SUN	SUNDAY AFTER ASCENSION.
30th	M	
31st	TU	
1st	W	Sale of Flowering Orchids at Mr. Stevens' Rooms, Covent [Garden.

### THE PHYLLOXERA AND ITS ERADICATION.

HERE can be no question as to the destruction this insect is capable of effecting in vineries, and perhaps few subjects have received less attention from gardeners. This may be attributed to the fact that the evil wrought by the insect in this country has been comparatively limited. Like many gardeners, I confess I was entirely ignorant of the appearance of the Phylloxera and the conditions of the roots and foliage when attacked by it, until it was explained to me by a friend, who on inspecting the Vines under my charge found that they were infested with the pest. I have since wondered why some of those who have had Vines similarly affected should keep the matter such a profound secret. This appears to have been the case in many instances, as I have since learnt. I feel convinced that if those who have had experience with it had endeavoured to bring such a serious matter publicly before gardeners and amateurs, a sharp look-out would have been kept, especially when planting purchased Vines. Had I known in 1878 the appearance of the roots when attacked with the Phylloxera, I should not have had to contend with it in 1880.

My object in bringing forward this subject at the present time is to draw attention to the importance of carefully examining the roots of all Vines about to be planted, not only with the unassisted eye, but with a powerful lens. When attacked the extremities of the fibres present a knotted form that can be readily seen. This character being absent is not sufficient to indicate that the Vines are clean, as many insects may be present and have not had time to form this peculiar knotted appearance. I have found roots free from this, yet with numerous insects. In such cases the lens will prove of the greatest service in finding the insects, as they are very small and most difficult to see, especially on young growing fibres, as they much resemble them in colour. When, however, the insects become fully grown or are about to deposit their eggs, they are considerably larger than at any other time, and scarcely move. Just before they reach that stage they appear to seek a secluded place, if possible in the crevices of the old bark upon the roots. I could not find in one instance an insect with eggs at the extremities of the roots, or upon any of the young growing fibres. From my observations the females all appear to die after laying their eggs.

It has been stated that within the knots or galls upon the roots the young insects exist in different stages of growth. I am, however, inclined to doubt whether this is really the case,

as I have opened hundreds of the galls and neither found insects nor eggs, while upon the foliage every gall contained insects in a semi-dormant state or with eggs. The winged insects were very scarce, as I was only able to discover two, and these differed considerably, being probably in different stages of development. The insects were found in the greatest numbers where the soil was somewhat dry, especially under the pipes, but where it was rather wet few insects were found. In the vineries on another estate in the western counties, where the Vines had to be destroyed a short time afterwards, the roots had access to both inside and outside borders, and on the roots in the latter not an insect could be found, while on those in the former these destructive creatures were swarming. From the above facts I inferred that the Phylloxera did not like a wet soil, and on experimenting further found that when they are plunged into cold water life soon becomes extinct. Portions of roots were placed in a tank of water, and in several instances the insects entirely disappeared, in others when taken out after being in the water twelve hours and still adhering to the root were dead, and the vitality of the eggs remaining upon the root appeared to have been destroyed. I think that if affected pot Vines were plunged into water for some time they would be cleansed. This I do not wish to assert is certain to exterminate the Phylloxera, as I had no opportunity of testing this point further than with portions of roots. If this proved satisfactory with Vines in pots, it is questionable if a Vine border could be saturated to a sufficient extent to destroy the insect without the remedy proving injurious to the Vines.

Doubtless a thorough clear-out of the Vines and the contents of the border is the most satisfactory in the end, especially if there are other vineries in the same garden, but where there is only one vinery the Phylloxera can be stamped out without destroying or removing the soil from the border. The Vines and every particle of roots from amongst the soil and drainage should be searched for and burnt. There can be no doubt that the insects will die in time when they can obtain no food; but care must be exercised that every portion of root is removed, or the insect will continue to live as long as any nourishment can be obtained. The soil in the border should be turned over several times and a little hot lime mixed with it, and the pest will, I feel confident from my experience in the subject, soon disappear.

When the soil is removed from a large border and subjected to a burning process, much labour is entailed and some difficulty experienced in burning it, especially if it has been in the border for a long time, unless a quantity of wood can be obtained. The burning process I do not consider necessary if plenty of hot lime and some salt can be mixed with the soil. The border here was cleared and the soil carted to the farm for top-dressing. Some weeks after I examined the heap of soil and could not find a trace of the Phylloxera. The drainage was removed and placed in a heap in close proximity to a drain, the whole being covered with salt, and then thoroughly washed with a good force of water from a hose. This being done the heap was again covered with salt, and remained in that condition until early autumn. The brick and stonework of the house inside was first well washed with water and then with pure paraffin; at the end of a week it was again washed with salt and boiling water (for this latter excellent suggestion I was indebted to Mr. D. Thomson), the final washing being with

muriatic acid and water and the house well painted. The bottom of the border, which was bricked, was taken up and relaid, running hot lime between the crevices of the bricks. Some time afterwards, to be sure the house was thoroughly clean it was tested by placing a clean Vine in it, but no trace of the insect was again to be found. The drainage was again replaced and the salt process repeated, and the house employed during winter for forcing and growing French Beans.

The house here was attacked in the centre, and the Phylloxera appears to remain upon one Vine, or in one portion of the border until all the roots are devoured, then spread to contiguous Vines. Two or three Vines at each end of the house were clean, while in the centre of the house every root was covered with knots. Temporary Vines had been planted near the back of the border to fruit at the top of the house for a season or two. A space of 18 inches between the two borders was left, and the insects had not reached the temporary Vines.

I cannot think the Phylloxera establishes itself in vineries so mysteriously as many suppose without obtaining affected Vines in the first place, or wood for eyes from such Vines. The insects move so slowly that it appears impossible for them to travel from one district to another. The wind might carry them, but this appears rather impracticable, as the insect will only live a short time exposed to sun and air. If young fibres are exposed, which quickly shrivel and dry-up in the sun, the insects will not live so long as if a stronger root is exposed that remains fresh for a greater length of time. Apart from the roots they only live at the longest about thirty-eight hours. From various experiments I am thoroughly convinced that the Phylloxera will not attack the roots of any other plants.—WM. BARDNEY.

#### SPRING FLOWERS.

"Spring's delights are all reviving,  
Verdant leaflets clothe each spray."

SPRING in its almost full maturity is upon us, daily growing more beautiful, and swiftly merging into early summer. From the opening of the first Snowdrops and Crocuses we have at first daily, and now almost hourly, additions of floral beauty till "spring's delights" culminate in the regal richness of the Rhododendron and the softer tints of Kalmias and Azaleas, the first flowers of which are just open, and from which we shall turn with lingering regret to greet the first Roses of summer in "leafy June."

That old friend of my boyhood, *Omphalodes verna*, has been very beautiful with its abundant clusters of deep blue flowers. Its great beauty and easy culture have often been pointed out in the Journal, and I am glad at length to see high praise awarded it and a discussion of its merits and culture in a contemporary. Runners taken off and planted now soon make large clumps—so large that some care is required to keep it within bounds. It is planted here with Solomon's Seal, *Pæonies*, and other perennials, among which it rambles unchecked, spreading almost as fast as *Lily of the Valley*.

*Myosotis sylvatica*, *Silene*, and other annuals are now in full beauty. The culture of these useful and easily managed plants has long ago been explained, but failures are still by no means uncommon, and they are generally found to arise from a mistaken idea that seeds of all sorts should be sown at the same time. It may, therefore, be useful to state once more that *Myosotis* for spring beds should be sown the third week in June; *Eschscholtzia* a fortnight later; *Silene* the third week in July; *Saponaria calabrica*, *Alyssum maritimum*, and *Iberis* the third week in August; *Nemophila*, *Collinsia*, *Limnanthes Douglassii*, and *Lasthenia californica* a week later. Sow in drills in a garden border of rich light soil, prick out into nursery beds as soon as the plants are large enough, and transplant to the beds immediately after the summer plants are cleared off. Give especial care to plant *Nemophilas* and *Saponarias* in light porous soil well elevated above the common level and drained.

*Lily of the Valley* is now in full beauty. Every garden should have a few patches of it. My best bed is on a low bank shaded by trees and thinly planted with shrubs, among which the pretty little *Lily* has spread far and wide with surprising rapidity. It loves good soil, and is certainly worthy of it. Break up the soil and insert the plants in small clusters a foot apart; keep down weeds for two or three years till the plants meet, but do not dig among them, and the bed once established will last for a lifetime.

The dry weather caused *Daphne pontica* to shed its flowers sooner than usual this year. It thrives and soon grows into large specimens in a light sandy soil. *Daphne cneorum* is now laden with its pretty pink flowers, which "scent the air with sweet perfume." To have it in perfection it must be planted in sweet wholesome fibrous peat—not wet black sour peat from a sodden bog. The *Andromedas*, too, are opening their pretty white Heath-like flowers. The robust *A. formosum* has been in bloom for some time, but I much prefer my favourite *A. Catesbæi*, which is not yet in full beauty.

Let us turn from the shrubs to the rockery, and the eye is at once arrested by the long trailing growth of *Lithospermum prostratum*, studded thickly with deep blue flowers. The plants are large, for they have been left undisturbed for five or six years. Some are growing singly, but two are intermingled with a variegated *Honeysuckle*, and the beauty of the flowers is much enhanced by its delicate yellow foliage. Upon the low rock beds there are several plants of *Azalea amœna*, that are just now masses of deep pink blossom clustering so thickly upon the branches that the foliage is quite lost to view. There are several lovely pink cushions of *Phlox frondosa*, and equally attractive white masses of *Phlox Nelsoni*.

*Saxifraga pyramidalis* is throwing up its bold flower spikes that will ere long become lovely tapering cones of white flowers a foot or two in height. This fine *Saxifraga* gives numerous offsets, which should be taken off and planted singly in order to secure fine spikes of bloom. Most of the minor *Saxifrages* contribute their little cluster of white flowers, and *S. muscoides rubra* is a red sparkling gem. A charming soft downy cushion of *Thymus lanuginosus* is studded with pretty little pink flowers. It is extremely dwarf, hardly rising an inch above the surface of the soil in which it is planted, but it has spread its velvety growth upwards over two large masses of rock, clothing them so beautifully that is now one of the most attractive of the rock plants. This plant and the aromatic *Thymus corsicus* were given me some five years ago by a friend who has since gone to his rest, and they have spread with equal rapidity, but the former is decidedly the more ornamental.

I have not devoted the rock beds altogether to alpine plants. There are plenty of them in little nooks and trailing over the rocks, but they are broken up into groups and colonies by plants of bolder aspect, such as *Erica carnea*, which has been very beautiful but has now done blooming, *Azalea amœna*, *Rhododendron ferrugineum*, *Erica Foxii*, so remarkable for its compact globular outline and tiny flowers, *Kalmia nana*, *K. glauca*, *Andromeda polifolia*, and *A. polifolia angustifolia*, both having pale pink flowers and forming pretty dwarf bushes.

As we go from the rocks past the pond containing the hardy aquatics we see *Aponogeton distachyon* in full bloom; it is often called the Water Hawthorn from the sweet scent of its singular pure white flowers. Along the side of the pond there are other white flowers springing upwards from stout trailing stems into spikes of great beauty. The unopened flower buds are charmingly tinged with pink, but the expanded flowers are quite white, and are most curious from the fact of the entire inner surface being thickly set with delicate filaments. This is the Bog Bean, *Menyanthes trifoliata*. It is one of our loveliest native plants. I found it growing in a bog on Ashdown Forest, among which also grew thousands of *Drosera rotundiflora*, *Asphodel*, and Bog Cotton. In its wild state the Bog Bean is not very attractive, but under cultivation its foliage and blossom become very ornamental.

There are many other spring flowers worthy of notice, for all are beautiful. The Mountain Ash is just opening its sweet flowers; the grand old Lilacs are laden with huge clusters; the Laburnums will soon wave their golden arms, rich with a wealth of floral beauty that imparts a peculiar and most attractive aspect to the garden. Soon will the Gueldres Roses give us their huge white snowballs again, and the Weigelas put on their vernal display of pink and white blossom that in the distance is not unlike Apple blossom. Apple blossom! is it not glorious this spring? The pyramids are very beautiful, but they are altogether eclipsed by the huge old standards at the farm, unpruned and wild-like, but so picturesque!—EDWARD LUCKHURST.

LOW *versus* HIGH NIGHT TEMPERATURES FOR MUSCAT GRAPES.—At page 383 a correspondent remarks that Mr. Simpson has not had justice done him in the matter of low night temperatures for Vines, which he has for a long time advocated. In going through the houses lately at Wortley when the Muscats were setting I noticed on a slate (one of which is hung in every house) the following figures for the men's guidance—Day temperature, with sun, 80° to 90°; dull days 60° to 65°; night 50°. In a Black Hamburg house, where the bunches were well out



but not in flower, the temperatures were—maximum, 75° to 80°; minimum, 45°. Mr. Simpson told me he gradually raised the temperature up to that period. The Muscat bunches that were set were crowded with berries, and this in a temperature 25° below what was advocated at one period. The saving of fuel alone, I was informed, was very considerable. I also noticed the houses were not so dry as one usually sees them when the Vines are in flower, as they are regularly syringed on bright afternoons during the flowering period, and the Vines were all in the best possible health.—G. S., *Sandbeck Park*.

### ASPARAGUS.

I BELONG to what the trim and starched modern professors of gardening of the present day might describe as the patriarchal school of cultivators, and my views on Asparagus may not possibly be accepted by all readers. Such a hard-headed veteran as myself, who does not believe that the great Potato exhibitions have been of substantial benefit, may fairly be regarded as "fossilised" from the point of view of the advanced order of beings who are ever thirsting for something new, and cannot rest if not engaged in revolutionising something or other. Yet, antiquated as my notions may possibly be deemed, I have yet a strong inclination to see and to grow garden produce, both flowers and vegetables, of the best quality. Flowers I conceive are grown to give pleasure to the eye and mind, vegetables to afford gratification to the palate and to afford sustenance to the body; therefore, however large and "noble" a Potato may be in appearance, if it is not of superior quality when cooked, I hold that ground and labour have been wasted in growing it; and if a dish of such tubers were to be awarded fifty prizes by the fanciers, the value of the variety would not be increased in my estimation. It would fail in the one great object for which Potatoes are required, and its charm is then gone for me.

Asparagus, like Potatoes, is grown to be eaten, and in my experience excellence of quality should be the chief object of culture, because it is certainly the point most valued by all the consumers (and they have been both numerous and critical) that it has been my lot to provide for. If we produce heads of Asparagus weighing half a pound, and yet only about an ounce and a half at the tips can be eaten, we are, I respectfully submit, like the man in the boat, progressing backwards, for we are extracting a maximum amount of the soil's most valuable constituents in the production of a minimum quantity of food, the bulk, or nearly seven-eighths of the whole, finding refuge in the swill tub. And I am not sure that it is not wasted even there, making a double waste, for I have seen hungry pigs refuse to eat the white tough ends that have been cut from the heads.

Now, as a gardener I am quite unwilling to expend my labour in growing produce of the kind referred to; and if I were an employer I should most decidedly object to any fancy process of culture by which such results are achieved as being economically unsound. Large heads I do not object to, provided they are not too large for an average-sized mouth, and I am not sure that I object to them even then; but my employer does, for he has told me so, and warned me not to overstep the mark in that important respect; but the greatest possible portion of those large heads must be such as human beings can eat, and not such as pigs refuse, for this is not what I call good gardening.

Asparagus, so far as I understand it, and judging also by the estimate of quality as decided by connoisseurs, is never so good as when it is grown so quickly by the aid of good soil and warm genial weather that the heads can be snapped off like glass near the surface of the soil. The produce is then buttery, juicy, and delicious, while it is also at the same time of the greatest possible medicinal value, inasmuch as the peculiar crystalline alkaloid, asparagine, is then developed—at least so an eminent scientific man has informed me, who has given much attention to the subject, prompted, I believe, to a great extent by the gout.

I have not been impelled by the same painful stimulant to refer to the subject in hand now, but was led to think over the matter after reading in the last week's Journal a note about an Asparagus competition that is to be held next month. I have not one word to say against this. If it will encourage the production of a greater amount of Asparagus of superior quality from a given piece of ground than before, it will be of great general advantage; but whether this end will be accomplished will depend, in my view of the case, to a great extent on the judges, and the principles by which they are guided in giving their decisions. The matter, it seems to me, is of too great importance to be dealt with on mere "fancy" grounds. We are told that "the prizes will be given to the largest Asparagus, provided it be in all other respects unobjectionable." The importance of this condition depends

wholly on the interpretation of its qualification. What is to be understood by the term "unobjectionable?" Everything depends on that in arriving at a sound rational common-sense judgment.

I can grow Asparagus far better than write about it, and am more at home in digging a piece of ground than in attempting an exercise in logic; but I cannot help thinking that as Asparagus is not grown as a flower to gratify the eye, but to be eaten, that the bundle of heads which contains the greatest weight of stalks that cannot be eaten by man or pigs is the most objectionable, and the bundle containing the least amount of waste is the most meritorious. Medium-sized green heads and stalks, what may be called the best English-grown produce, contain decidedly less waste than the huge white blanched stalks with red tips grown on the French system; and yet the former that contains the greatest proportionate amount, or even the greatest actual amount of eatable produce would under some adjudicators have slight chance of winning a prize against the "largest" heads grown on the blanching system and which contain a much less weight that can be eaten. Or to put it another way, when the resources of the ground have been applied in the fullest manner for the production of food, the cultivator gets no prize, while if the soil has been exhausted or manure employed in growing a maximum amount of waste the cultivator is honoured. The Judges at Tunbridge Wells have a difficult task to perform, and unless they take a practical, not a mere fanciful, view of the whole subject they will run the risk of giving prizes to what really amounts to soil-exhaustion, while those cultivators who turn its resources to the best account will be left out in the cold. It is not the farmer who grows the most straw and the least grain that is doing the best for himself and the land, for waste and weeds are synonymous, and both, or either, lead to bankruptcy; and what cannot be utilised of garden produce is as much waste in the garden as weeds are on the farm.

Sixty heads, each 6 inches in length and as thick as a man's thumb, of well-grown Asparagus, every particle green, and two-thirds of it tender, represent better and more economical cultivation than the same number of blanched and Frenchified heads 8 inches long and as big as the paws of a prize tom cat, if three-fourths of each head, as is often the case, is waste. But it may be asked, Why not grow the green heads and stalks as large as the white? I know there are some people who call themselves horticulturists who betray their ignorance by making this proposition, and have led gentlemen who do not profess to study these matters to think it is practicable, to the discomfort of their gardeners. It is not practicable nor possible. No gardener, no Frenchman, can grow stalks of Asparagus 9 inches long, and green and crisp throughout, so large and heavy as the white tough stalks of the same length. A law of Nature is against him. So long as the growths are covered with soil they increase in thickness as they advance in growth, but the moment the stems are above ground they commence diminishing in thickness, and the cultivator can no more prevent this than he can prevent the trunk of a Larch tree tapering to the top. This was stated some time ago by a writer in the Journal, and it is perfectly true. It is right that gentlemen should know it, then they can decide whether they will sacrifice quality for size or not, and instruct their gardeners accordingly. I have been instructed on this matter, and the circumstance may as well be stated.

Some years ago my employer brought me some wonderful Asparagus from France. He did not say he desired me to grow some of the same kind, but I fancied it was my duty to try the blanching system. In due time I was able to send some huge white heads in the London hamper with the usual supply of the ordinary green produce; and I confess I was not surprised to receive the following order:—"Don't send any more of that big French Asparagus, as neither my family nor friends like it so well as the other, and there appears to be so much waste about it."

Let those who like the large blanched produce have it by all means, but let them count the cost of its production by weighing the waste, and what it represents of the soil's resources. I am amongst a large number who are like the waiter in *Punch*, who after remarking "how universal is the love of sparrow-grass," sententiously observed, "I don't enjoy it so much myself now they're grown such a size and such a colour. I like my grass green, as seems more natural."—A COUNTRY GARDENER.

A NEW PRODUCT FROM BIRCH BARK.—A French inventor has recently patented a method of improving indiarubber and gutta percha by the addition of a distillate of Birch bark. By distilling the outer layers of the bark he obtains a dense black gummy matter, which possesses the properties of ordinary gutta percha with the additional quality of resisting both the action of air and the strongest corrosive acids. He claims also that by

adding a small proportion of the Birch bark gum to gutta percha or to indiarubber (one twentieth part will suffice), the durability of the rubber or the gutta percha will be greatly increased, the new mixture not being acted upon by the air or by acids.—(*The British Mail*.)

### READING HORTICULTURAL SOCIETY.

MAY 19TH.

IN some respects the spring Show held at Reading on Thursday last has scarcely been surpassed by previous exhibitions of the Society at the same period of the year, for though the number of exhibits has been greater, the general freshness and health of the plants has not been excelled, and in several of the leading classes admirable examples of cultural skill were noticeable. Flowering plants were in point of numbers well balanced by those grown chiefly for their foliage, and the tasteful arrangement produced an effect that was bright, but agreeably toned by the Palms, Ferns, and similar plants in the last-mentioned classes. As usual the picturesque Abbey Rhns was selected for the Show, and the day proving fine induced a very large company to assemble.

**STOVE AND GREENHOUSE PLANTS.**—Several very satisfactory collections were contributed in the classes devoted to these plants, but in the principal class there was no competition though the prizes were liberal. The only exhibitor of twelve specimens was Mr. Lees, gardener to Mrs. Marsland, The Wilderness, who was deservedly awarded the first prize for healthy well-flowered plants. The most noteworthy were the following—*Mussaenda frondosa*, about 4 feet in diameter, not formally trained, but extremely vigorous, and bearing a very large number of its bright yellow tubular flowers accompanied by large pure white bracts. This well-known and beautiful stove shrub is rarely seen in better condition than that staged by Mr. Lees; in fact it is by no means a common exhibition plant. *Franciscea calycina* major was also well represented with flowers fully 4 inches in diameter, and of the rich purple colour that characterises the variety. *Clerodendron Balfourianum* was healthy and well flowered; *Erica Cavendishiana*, notable for the deep colour of the flowers; *Rhynchospermum jasminoides*, vigorous, but with few flowers; *Vinca alba*, *Azalea Bernhard Andreas*, *Erica depressa* major, and several others completed this satisfactory collection. There were two competitors in the class for six specimen stove and greenhouse plants; Mr. Hope, gardener to the Hon. R. Boyle, Purley, securing the chief prize with *Plumbago capensis* profusely flowered; *Lantana splendens*, 5 feet high, trained on a balloon-shaped trellis and remarkably healthy. *Tecoma jasminoides* was rather rough, but *Bougainvillea glabra* and *Tabernaemontana coronaria flore-pleno* were creditably shown. Mr. Bennett, gardener to M. Lonergan, Esq., Cressingham, was adjudged the second place with neat specimens, among which a good specimen of *Azalea Fjelder's White* was notable. In the amateurs' class for four specimens Mr. Mortimer, gardener to Major Storer, Purley Park, was the only exhibitor, securing the second prize for moderately good examples of *Plumbago capensis*, *Rhynchospermum jasminoides*, and *Bougainvillea glabra*. For a single specimen Mr. Ashby, gardener to W. Fanning, Esq., obtained the chief award with *Rhododendron Michael Waterer* bearing numerous large trusses of flowers. Mr. Armitage, gardener to N. Clarke, Esq., followed with an evenly trained *Tetradlea verticillata*; and Mr. Baskett, gardener to W. J. Palmer, Esq., took the third position with *Tabernaemontana coronaria* 5 feet in diameter and very healthy, though the flowers were not quite sufficiently advanced.

**Azaleas.**—The principal collection of Azaleas formed a bank at the lower end of the tent, the enormous specimens from Mr. Bennett—for which the chief prize in the open class for nine was awarded—particularly attracting attention. These were of pyramidal form, some exceeding 6 feet in height, well clothed with foliage and flowers. The best were *Etoile de Gand*, *Stella*, and *Flag of Truce*, the last-named being in especially satisfactory condition. Mr. Lees secured the second position with a less even collection, but including some fine specimens; *Souvenir du Prince Albert* was flowering profusely, Vivid brightly coloured, and *Admiral Napier* a very large plant—even larger than most of Mr. Bennett's, and also satisfactory in other respects. Mr. Armitage was third with much smaller but neat plants. Mr. Lockie, gardener to Lord O. Fitzgerald, Windsor, and Mr. Mortimer were the prizetakers in the amateurs' class for four Azaleas in the order named, the former showing neat well-flowered specimens of medium size, *Duchesse Adelaide de Nassau*, *Blushing Bride*, and *Roi d'Hollande* being the best. The others were not trained, but fairly good. In the class for six Azaleas in 8-inch pots three neat collections were staged, Mr. Lees taking the chief position with even well-flowered plants, including *Roi d'Hollande*, *Hermine*, and *A. Van Geert* in first-rate form. Mr. Lockie was a close second with rather smaller specimens, Mr. Armitage securing the third prize with a less even contribution.

**Pelargoniums.**—These were not so numerous as they have been at some previous shows, but moderately good plants for the season were staged by several exhibitors. For nine show varieties in 8-inch pots Mr. Ashby gained the first prize with well-flowered healthy plants,

the best being *Duchess of Edinburgh*, *Ruth*, *Triomphe de St. Mande*, *Alchemist*, and *Prince of Pelargoniums*, all useful and well-known varieties. Mr. Mortimer followed with fairly good plants, among which *Empress Eugenie*, *Red Gauntlet*, and *Lady of the Lake* were particularly noteworthy for the size and substance of their flowers. Mr. Burgess, gardener to Colonel Clayton, Maidenhead, was accorded the third position for neat examples of *Maid of Honour* and *Spotted Gem*, and others nearly as good. This exhibitor also sent the only collection of six Fancy varieties, for which the chief prize was deservedly awarded. *Fanny Gair*, *The Shah*, *East Lynn*, and *Pilgrimage* were finely represented, all the plants being even and the flowers brightly coloured.

**Roses** were neither numerous nor generally in very satisfactory condition, only one really first-rate collection of plants being staged. In the open class for six specimens, distinct varieties, Mr. Lees was awarded the principal prize; but though his plants were healthy they were rather rough, and except on *John Hopper* the blooms were not of such substance and form as might be desirable. Mr. Tranter, Upper Assenden, was second with plants of medium size and well-developed foliage. *Dupuy-Jamain* had some good blooms, and several other varieties were fairly represented. In the amateurs' class for four Roses Mr. Lockie was the most successful exhibitor, and very well he merited the prize awarded him, for the plants were by far the best in the Show. They were even, vigorous, with fine foliage, and several bore really handsome blooms; *Madame Hippolyte Jamain*, *Oxonian*, and *Madame Thérèse Levet* being the varieties best represented. Mr. Baskett followed, his plants being taller and not so compact. *La France* had several flowers of good substance.

**Gloxinias and Calceolarias.**—The chief prize for six *Gloxinias* was secured by Mr. Baskett, who exhibited large handsome specimens in 8-inch pots. The foliage was remarkably fine, the flowers large, of good form, and bright colours. The plants, it was stated, had been raised from Messrs. Sutton & Sons' strain of seed. Mr. Durman, gardener to W. Workman, Esq., was second, also staging plants bearing good flowers. Mr. Mortimer followed with fair examples. The best six *Calceolarias* were contributed by the last-named exhibitor, who well deserved the prize accorded him. The plants were compact, even, with abundant well-formed brightly coloured flowers, the only defect being the slightly yellowish foliage; with that exception the plants were very satisfactory. Messrs. Lockie and Bennett secured the remaining prizes in the order named with moderately good plants. *Fuchsias* and *Ericas* were not numerous nor in excellent condition.

**Orchids.**—Very liberal provision is not usually made for Orchids at Reading, nor is the display extensive, yet in the five or six small collections staged at the last Show there were several pretty little specimens of considerable merit. For three specimens Mr. Pound, gardener to G. May, Esq., Caversham Warren, was first with a robust example of *Dendrobium thyrsiflorum* in a small basket, and bearing three fine trusses of flowers; a handsome variety of *Dendrobium Falcoueri* with large richly coloured flowers, this was also in a basket and very vigorous—there could not have been much less than a hundred flowers and unexpanded buds; *Vanda suavis* was represented by a small plant of a good variety bearing four trusses. The second position was secured by Mr. Baskett with *Oncidium sphacelatum*, *Odontoglossum citrosum*, and *Dendrobium thyrsiflorum*, all neat and healthy. An extra prize was accorded to Mr. Atkins, gardener to Col. Lloyd Lindsay, M.P., Lockinge Park, for *Cattleya Mossiae*; *Dendrobium nobile*, fine variety, well flowered; and *Cypripedium barbatum*. The best single specimen was *Dendrobium Falcoueri* from Mr. Pound, a fine example of a beautiful Orchid. It was growing on a Tree Fern stem about 2½ feet high, and had abundance of richly coloured flowers. Mr. Hope took the second prize for a healthy *Dendrobium thyrsiflorum* with over a dozen trusses of large flowers.

**FINE-FOLIAGE PLANTS.**—The chief class was that for nine specimens, and two satisfactory collections were staged. Mr. Mortimer was a good first with large well-grown specimens, of which *Cissus discolor*, *Croton Weismanni*, well coloured and healthy, *Alocasia macrorrhiza* variegata, variegatum, clearly and distinctly marked, *Latania borbonica*, *Alocasia metallica*, and *Yucca aloifolia* variegata were the most notable. Mr. Bezan, gardener to H. T. Simonds, Esq., Caversham, was second with healthy examples of *Maranta Makoyana*, *Croton variegatus*, and *Cissus discolor*. In the amateur class for four specimens two collections were also staged—namely, by Messrs. Lees and Hope, who were awarded the first and second prizes in that order. The former had a vigorous *Pandanus Veitchi*, a large well-furnished *Cycas revoluta*, *Croton Weismanni* of good colour, and *Latania borbonica*, very large. The most noticeable plants among Mr. Hope's were *Cissus discolor* and *Pandanus Veitchi*, both admirably grown.

**Ferns.**—Mr. Mortimer was again to the front with nine Ferns, staging the large healthy specimens which have often obtained similar honours, and been approvingly noted in these pages. *Adiantum cardiochlaena*, *A. concinnum latum*, *A. gracillimum*, and *Gymnogramma chrysophylla* were in unusually fine condition with abundance of healthy fronds. These Ferns constituted an imposing group arranged on one of the mounds sloping to the centre of the tent. Those from Mr. Bezan, who was placed second, were much smaller but healthy, the best in his collection being *Adiantum trapeziforme* and *A. punctum*. Mr. Lees was the chief exhibitor of four



specimens, including a very fine *Platyserium alcicornis*, such as is seldom seen at exhibitions. Mr. Hope was a close second with clean and even plants, *Adiantum cuneatum* being particularly fine. For a single specimen Mr. Bezan secured the first prize with a large *Alsophila australis*, Mr. Mortimer following very closely with a similarly large and remarkably healthy *Davallia Mooreana*, 5 or 6 feet in diameter and bearing some uncommonly large fresh fronds. These two plants were nearly equally meritorious. The only collection of *Selaginellas* was that from Mr. Mortimer, who exhibited his customary neat conical specimens for which the first prize was deservedly awarded.

**Groups.**—These formed an important feature in the Show, and were generally bright. For a group to occupy a space 10 feet by 12 there were five competitors, the most successful being Mr. Baskett, who had a tasteful arrangement of Roses, *Dielytras*, Azaleas, *Spiraeas*, and *Gloxinias*, with sufficient fine-foliage plants to tone the brightness imparted by the others. Mr. Bennett, who was second, had a group containing rather more colour, Zonal *Pelargoniums* and *Cinerarias* rather too strongly predominating. Mr. Burbidge, gardener to B. Simonds, Esq., was third with a neat collection, chiefly noteworthy for the fine *Richardias* and the edging of *Adiantum gracillimum*, *Isolepis gracilis*, and *Selaginellas*. Extra prizes were obtained by Mr. Powell, gardener to F. J. Blandy, Esq., and Mr. Mayne, gardener to Miss Moon, both staging attractive groups, but the first-named was rather too formal, and the last too thin. Mr. Pound was the only exhibitor of a smaller group (6 feet by 4), which included several fine *Dendrobes*, especially *D. Falconeri*. Two groups of *Rhododendrons* were exhibited by Mr. Ashby, gardener to W. Fanning, Esq., Whitechurch, and Mr. Bennett, the former including plants with fine trusses of blooms representing some of the best varieties. Groups of hardy plants were also shown, but not of any remarkable merit. Messrs. Lees and Bennett were the chief prizetakers.

**Cut Flowers.**—Mr. Bennett contributed the finest collection of twelve bunches, and easily won the first prize; some of the most noteworthy in his stand being *Brugmansia Knightii*, *Dendrobium Pierardi*, *Begonia nitida alba*, and *Gloxinias*. Mr. Atkins was second, staging very neat blooms; the *Eucharis*, *Tacsonia exoniensis*, and *Rhododendron Gibsoni* being unusually fine. In the amateurs' class Messrs. Mortimer, Hope, and Burgess were the chief exhibitors, the first-named having handsome blooms of *Pancreatium fragrans* and *Dendrobium Devonianum*. Cut Roses were represented by three collections from Messrs. Tranter, Lees, and Lockie, who were awarded the prizes in that order. The premier blooms from Mr. Tranter included some fine examples of *Maréchal Niel*, *Madame Victor Verdier*, *Emilie d'Hausburg*, *Souvenir d'un Ami*, and *Richard Wallace*, all fresh, of good substance and form. The other exhibitors also contributed fair blooms—*Madame Bravy*, *Jean Pernet*, and *La France*. Mrs. Owen Knox of Caversham sent a handsome collection of twelve Fancy Pansy blooms, very even and brightly coloured. Bouquets, buttonholes, and ornamental stands of flowers were numerous as usual from various lady residents of the town. Mr. Phippen carried off several prizes; and Mr. Millen, gardener to the Marquis of Donegal, Hampton Park, was also successful.

**FRUIT AND VEGETABLES.**—Strawberries were not abundant, but several of the collections included some remarkably fine fruits. Mr. Mortimer was adjudged the first prize for a dish of thirty-six fruits, the variety being *President* in extremely fine condition, very even in size and of excellent colour. Another box of the same variety from Mr. Mortimer, containing fifty-four fruits nearly as good as those in the class, was highly commended by the Judges. Mr. Hope followed with the same variety. Peaches were shown by Mr. Fowle, gardener to Sir H. St. John Mildmay, Bart., Dogmersfield, and Mr. Ashby, those from the former being well ripened and of good size. Grapes were poor, the best being a neat bunch of Black Hamburg from Mr. Ashby. Mr. Atkins obtained a certificate of merit for fruits of *Melon Hero* of Lockinge, finely netted, neat in form, and excellently ripened. In the Society's class for the best brace of Cucumbers there was close competition. Mr. Lockie was placed first with *Masterpiece*, even, handsome, and bearing fine bloom. Mr. Atkins was second with *Improved Telegraph*, not quite so even, but very good examples. There was also very keen competition for Messrs. Suttons' prizes, the premier award being secured by Mr. Howe with a brace of handsome Cucumbers, the produce of a plant raised from seeds obtained from a cross between *Freeman's Yard Long* and *Telegraph*. They were long, even, and bearing good bloom. A certificate of merit was awarded for the variety, which was named *Challenger*, and is described as very prolific. Mr. Lockie was second with fine examples of *Model*; and Mr. Ross, gardener to C. Eyre, Esq., Welford Park, was third with *Tender* and *True*.

Collections of vegetables were shown by Mr. Lockie, who was first with good Asparagus, *Model* Potatoes, *Enfield Market* Cabbage, &c. Mr. Read, gardener to F. Wilder, Esq., Purley Hill, was a good second. In the class for Peas the first prize was awarded to Mr. Burbidge for Suttons' new variety *American Wonder*; and in Potatoes Mr. Lockie was first with *Woodstock Kidney*, very fine. Other vegetables, such as Cauliflowers, were also fairly represented.

The chief miscellaneous group was from Mr. C. Turner of Slough, and comprised a number of handsome young Azaleas and *Pelargoniums*. Certificates of merit were awarded for the beautiful double white *Azalea indica Madeleine*, previously noted in this Journal, and for the tricolor *Pelargonium* Mr. Henry Cox with neatly formed richly coloured foliage. Mr. Tranter contributed a box of un-

commonly fine *Maréchal Niel* Roses, for which an extra prize was deservedly awarded. They were of good size, excellent form, and great substance, being very creditable to the grower.

#### BOUVARDIA ALFRED NEUNER.

THE double *Bouvardia* represented in the annexed woodcut is of American origin, and has been described by Mr. Meehan as possessing considerable beauty. The flowers are said to be pure white and completely double, as shown in fig. 91, which has been forwarded to us by Messrs. J. Carter & Co. of High Holborn, who state that they have been appointed the sole agents in England of the American firm now sending it out. Should the plant prove equal to the representation, it will undoubtedly be valuable for



Fig. 91.—*Bouvardia Alfred Neuner*.

decorative purposes and affording a supply of flowers that would be well suited for bouquets. We may add that it is said to be a sport from *Bouvardia Davidsonii*, and was certificated by the New York Horticultural Society early in the present year.

#### ROYAL WESTERN HORTICULTURAL SOCIETY.

MAY 17TH AND 18TH.

THIS Society last year discontinued their spring Show for want of sufficient means, but it is now reconstituted, and by the energy and tact of the new executive a display was collected in the spacious building, St. Andrew's Skating Rink, Plymouth, worthy of the town and neighbourhood, and the best this old-established Society has ever held.

Many special prizes were offered, and among them were the following:—The President's prize, E. C. Baring, Esq., of ten guineas for dinner table, 4 feet 6 inches by 10 feet, completely and fully laid for ten persons; the Mayor's prizes of three guineas for table decoration, a vase or ornamental stand; the borough member's prize of five guineas given by P. S. Maccliver, Esq., M.P., for twelve stove and greenhouse plants, six in bloom; the borough member's prize of five guineas given by E. Clarke, Esq., M.P., for the best collection of Azaleas sent out since 1874; the Chairman's prize of ten guineas given by W. Derry, Esq., for twelve Roses in pots; and a silver cup, value three guineas, given by C. R. Barden, Esq., for the best specimen plant in bloom. The schedule contained fifty classes, the majority of which being well represented, and completely crowding a large hall 166 feet long by 109 feet broad.

Messrs. Lucombe, Pince & Co. of Exeter contributed a group of miscellaneous and decorative plants which is acknowledged to be the best that was ever seen at Plymouth before; amongst others were some grand examples of *Bougainvillea glabra*, *Stephanotis floribunda*, *Allamanda grandiflora*, *Anthurium Schertzerianum*, *Crotons undulatus* and *interruptus*, a large collection of Azaleas including the best varieties; Ferns, Palms, and decorative plants, including a couple



of boxes of the beautiful Tea Rose Niphetos. Stove and greenhouse plants were largely contributed by the Earl of Mount Edgcumbe; Sir J. Amory Heathcote, Bart., M.P., Tiverton; H. B. Mildmay, Esq., Flete; E. C. Baring, Esq., Membland; E. Allen, Esq., Ivy Bridge; R. Parson, Esq., St. Austell; and W. Derry, Esq., Plymouth. The collection from Sir J. Amory Heathcote were admirable examples of cultural skill, and worthily deserved the first prize and extra certificate of culture awarded to them. The same contributor staged some most excellent specimen Azaleas, in each case gaining first honours. Mr. J. R. Challice, nurseryman, Plympton, gained the borough member's prize for the best collection of Azaleas sent out since 1874. Pelargoniums, Calceolarias, Mignonette, Petunias, Begonias, and Gloxinias were freely contributed, and the chief prize-takers in these classes were Admiral Curme, Lord Francis Cecil, Messrs. Mildmay, Allen, Hamilton Whiteford, J. Watts, Amos Groombridge, and Derry. Roses, of which there were two classes—one for twenty-four varieties not to exceed three of each variety, and the other for twelve varieties and the same conditions—were contributed by Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston; Mr. Smith, St. Austell; and Messrs. Curtis, Sandford & Co., Devon Rosery, Torquay. In the class for twenty-four Mr. Moorman was awarded the first place, and Mr. Smith the second; and in the smaller class Messrs. Curtis, Sandford & Co., first, and Mr. Moorman the second prize.

Vegetables were abundantly exhibited considering the earliness of the season, and were especially good; Grapes, Strawberries, and Gooseberries were represented in the fruit classes, while Cucumbers formed an extensive display.

The weather on both days was bad, the only two unsettled days during the present dry spring, nevertheless there was a fair attendance of visitors. The arrangements were admirable, and the long list of exhibitors as well as visitors are indebted to Messrs. Walling and Bond, the Hon. Secretaries, for their particularly courteous and attentive demeanour to all.

### THE MARÉCHAL NIEL ROSE.

FEW places have made more rapid progress in Rose cultivation than Reigate, and few places, I venture to say, have more really practical admirers of its favourite flower. This was manifested at the last National Show by the large number of prizes taken by members of our Association.

Amongst these members, as amongst all Rose-growers, there are still various opinions, however; not as to the grandeur of this Rose, the Maréchal, when in perfection, but as to the uncertainty of producing it in that state. "It is so very precarious," say some. "It is useless to attempt to grow it without protection," say others. Then, again, "It will not bear coddling." Under these circumstances it struck me that to state how it is grown in perfection may be useful to its many admirers, and do something to convert those "who have their doubts about it." The other day I saw it in "cold house" without any special pretensions or favour, except a southern aspect, grown by one of our members, Mr. Badger, in such beauty and profusion which would at once excite admiration in any lover of the Rose. On some four or five plants there must have been not less than eight hundred blossoms in every possible stage of beauty. These plants had had no artificial heat; of course good soil, as much fresh air as possible, and the usual steps had been taken to keep them clean. The result was one which any Rose-grower or lover would be pleased to obtain, and I hope these few lines may induce at least some to enjoy a like success in the cultivation of this beautiful Rose.—JOHN PAYNE, *Treasurer, Reigate Rose Association.*

### FLORAL EXHIBITION AT THE ALEXANDRA PALACE.

THE first of a series of special exhibitions was held on Friday and Saturday last, being on this occasion devoted to table and floral decorations and Roses in pots. The Clematises from Messrs. Jackman & Son of Woking also remained on view, and with groups provided from the Palace gardens a pleasing display was produced under the careful superintendence of Mr. J. Forsyth Johnson. The lessees offered very liberal prizes in twelve classes, in some of which a much keener competition might have been expected considering the value of the prizes. In many of the arrangements of the tables also there was considerable room for improvement, several exhibitors employing too much material, overloading the tables and producing a heavy appearance, others having too many brightly coloured flowers and insufficient foliage to tone the rather glaring effect produced. However, these were the exceptions, for the majority of the winning exhibits were fairly tasteful and satisfactory. Originality in this as in many other artistic works is not too common, and the great attractions of decoration, simplicity of design combined with effectiveness, are frequently lost sight of by those who employ their time and attention in such work.

The most imposing feature of the Show were the groups of Roses in pots from Messrs. G. Paul & Son, Cheshunt, the only entries in the

two classes devoted to Roses, and which well merited the premier prizes awarded for them. The large specimens were in admirable condition, fresh, healthy, and vigorous, the foliage fine, the blooms numerous and generally of good size and substance. Charles Lawson was particularly fine, the colour being very bright and the flowers large; Dr. André, Victor Verdier, and Madame Victor Verdier were similarly attractive. On each side of the large specimens the small plants—i.e., those in 10-inch pots, were arranged. These were also in creditable form, Duchesse de Vallombrosa, Perfection de Montplaisir, Madame Thérèse Levet, and Madame Lacharme being the varieties most noteworthy. Some of these had over two dozen blooms each. A short distance from the Cheshunt Roses were the Woking Clematises in a circular group. The plants were healthy and well trained, but as they had been shown for some time the flowers were rather past their best. Some good varieties were represented, the best single purples being Robert Hanbury, Princess of Wales, Marquis of Salisbury, Blue Gem, and Lady Caroline Nevill; double purple, Countess of Lovelace; single white, Maiden's Blush; and double white, Lucie Lemoine.

The tables occupied a considerable space, and were arranged in lines in the central transept. In the class for a dinner table set out for twelve there were five exhibitors, Messrs. Dick Radclyffe & Co., High Holborn, securing the first prize. In the centre of the table were three elegant glass stands, which contained chiefly Rhodanthes and Grasses at the top, below these being white Azaleas, Spiræas, and scarlet Bouvardias, the base being occupied with Anthurium Schertzerianum, white Azaleas, scarlet Pelargoniums, Spiræas, Ferns, and Begonia foliage, a few sprays of Lygodium scandens being twined round the columns of the stands. Near the sides of the table were small buttonhole glasses, and the fruit comprised Grapes, Apricots, and Peaches. Mr. Sutton Abbott, Nightingale Lane, Wanstead, was second with a somewhat similar arrangement, but containing several Ixias, Chrysanthemum Etoile d'Or, and Eucharises, the fruit being Cherries, Figs, and Apricots. Mr. J. R. Chard, Floral Dépôt, Clapham Common, was third, Fuchsias having been much too freely employed in his stands. There were also five entries in the class for a smaller table (for six persons). Mr. W. L. Buster, St. Mary's Cray, Kent, was placed first with a neat arrangement. The central stand contained flowers of Delphinium cardinale, Narcissuses, Grasses, Azaleas, and Ferns. Messrs. D. Radclyffe and Mr. J. R. Medland, Chelmsford Road, Woodford, followed closely, neither being of remarkable merit.

Bouquets were numerous. For a bride's bouquet there were five entries; Miss Annie Williams, Sutton House, Upper Holloway, being awarded the first prize for a very neat arrangement of white Azaleas, Tabernaemontana coronaria flore-pleno, Gardenias, Stephanotis, Lily of the Valley, and Adiantum cuneatum. Mr. W. Brown, St. Mary's Grove Nursery, Richmond, was a very close second, his bouquet being somewhat similar, but containing Bouvardias in addition. Messrs. Jones & Son, 7, Shoplatch, Shrewsbury, were third, Eucharises and Stephanotis chiefly characterising their design. For three bridesmaids' bouquets Messrs. Jones & Son were first and Mr. W. Brown second, both exhibiting well. Ball-room bouquets were contributed by four exhibitors. First, Messrs. Jones & Son, Shrewsbury, with combinations of Myosotis, Odontoglossum cirrhosum, Azaleas, and Eucharises in one; Maréchal Niel Roses, Oncidium concolor, and Bouvardias in another; and Lælias with Dendrobies in a third. Mr. A. Stuart, 84, Seven-sisters Road, was second; and Mr. W. Brown third. Flower stands were not very remarkable, though the competition was good. Messrs. Stuart and Buster and Miss Williams were the prizetakers. Mr. W. Brown was first with six buttonholes, chiefly Orchids and Rosebuds; Miss Williams was a close second; Miss E. M. Baines, Palmer's Green, taking the third and an extra prize for neat arrangements. Baskets were contributed by Miss Williams and Messrs. Medland and Stuart, who secured the chief prizes.

One exhibit that was not for competition deserves notice; this was a collection of artificial flowers from the Flower-girls' Brigade, 12, Clerkenwell Close, E.C. Some of these were admirably executed, Camellias and Narcissus flowers especially. Several really attractive bouquets were included in the stand.

### THE GOOSEBERRY CATERPILLAR AND CURRANT SHOOT GRUB.

ON page 188 of our issue of March 10th of the present year appears a reply from an entomologist to the letter of a correspondent, "COMBER," on the Gooseberry caterpillar. In reference to what appears on the page quoted we subsequently received the following letter, which may be appropriately published at the present time, seeing that we are on the eve of the caterpillar season.

"With all deference to your entomologist, I think his very full description of the Gooseberry caterpillar will not assist your correspondent 'COMBER;' but if 'COMBER' will refer to your issue of July 24th, 1879, page 76, he will find what he requires in your reply to 'W. D. M.' The plan of handpicking there recommended I have found the surest way, having practised it for many years and never failed to keep my trees free of this pest after the first

appearance; but allow me to supplement your reply to 'W. D. M.' by adding that when he discovers any leaves perforated, which is the first sign of the larva having come to life, to pull all such leaves off and destroy them. If 'COMBER' desires to test this plan he will not regret the time given in going over the trees, as so much depends on getting quit of the first hatching.

"As a guide for him to know the insect (*Nematus Ribesii*, or Sawfly), if he will refer to page 431, vol. xxii., or page 515, vol. xxv., of our Journal, he will find a full description with wood-cut illustration of the same. I have looked over the Journal since 1870 and find questions asked respecting this destructive insect in almost every volume; and the remedy given, with one or two exceptions, is to dust the trees with hellebore powder, which, being a poison, I think is not very desirable to use.

"P.S.—If 'COMBER' wishes to see what has been written in our Journal respecting the insect in question let him refer to the following vols.—viz., vol. xviii., page 404; vol. xxi., page 16; vol. xxii., pages 431 and 510; vol. xxiii., page 67; vol. xxiv., page 477; vol. xxv., page 515; vol. xxvi., page 516; vol. xxvii., page 14; vol. xxviii., pages 436, 472, and 435; vol. xxix., pages 91 and 136; vol. xxxi., page 68; vol. xxxvii., pages 76 and 295; vol. xxxviii., pages 317 and 422.—K. K."

We are obliged to "K. K." for his diligent research; and as all old readers have not preserved the back numbers, and as we have had many new subscribers of late, we reproduce the figure of the sawfly and remarks referred to, also the figure of the

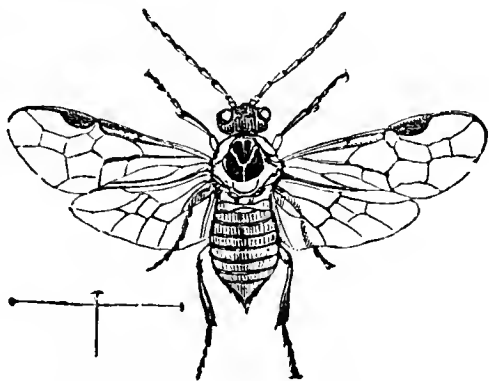


Fig. 92.—Gooseberry Sawfly.

Current fly and grub, in reply to "A KENTISH INQUIRER," who desires some particulars respecting them.

"The green caterpillars which so soon strip off a Gooseberry bush's leaves are the larvæ of a sawfly. The cross lines show the natural size of this sawfly. This insect, which has been named by entomologists *Nematus trimaculatus*, *Nematus Ribesii*, *Tenthredo Grossulariæ*, and *Tenthredo ventricosa*, comes forth in the course of April. Its body is yellowish brown; its antennæ nine-jointed and brown; the crown of the head, eyes, three large spots divided by a light line on the back, and a large spot on the breast, are all black; the body or belly is orange; the wings reflect the colours of the rainbow; and their nerves, with a large spot on the front edge of the fore wings, are brown; the legs are brown also. The female lays her eggs along the principal nerves on the under side of the Gooseberry leaves, and less frequently on those of the Red and White Currant. The eggs are hatched within ten days, and the arrival of the caterpillars may be known from the leaves being eaten through into numerous small holes. These caterpillars are pale green, with one ring at each end yellow; the head, tail, feet, and rows of spots on their sides being black. Successional broods are hatched from the beginning of May until October, but it is during May and June that they are usually most abundant and destructive. Some of these descend into the earth from cocoons, and bring forth fresh flies at the end of the summer; but the later broods of caterpillars remain in their cocoons throughout the winter, and give birth to the earliest spring swarm of sawflies."

We have also received the following note from our entomological correspondent supplementary to his remarks on page 188—

"To what has been already stated in regard to the caterpillar of *A. grossulariata* I wish to add a remark accidentally omitted—viz., that it will occasionally feed upon a variety of plants in a garden, should scarcity of food lead it to wander from the species it prefers. I have found it upon the Rose, but usually it is reluctant to travel far. Another circumstance about it that is notable may be added—the insect is common 'in the open,' feeding often enough along the hedges and the borders of woods. Hence in country places gardeners are exposed to the arrival of moths into enclosed grounds which have not been bred there. Comparatively little damage appears to be done by the caterpillars during the autumn, hence they commonly escape notice then. Miss Ormerod

of Isleworth recommends forking up the earth and sprinkling in lime as the best remedy for this and the sawfly also."

As to remedies, we know that the plan recommended by "K. K." of promptly gathering all the perforated leaves is a safe one, but too tedious for many cultivators in this reduction-of-labour period. For preventing the caterpillar Mr. Diggles wrote as follows last March on preventing the Gooseberry caterpillar. "Boil some white hellebore powder in water and place it in a tub or garden engine, adding sufficient boiling water to syringe all the trees; when it is cold apply it on a dry day, to dry on the leaves as soon as the trees are in leaf immediately after blooming, and before the fruit has grown. One application is sufficient for the season, and does not injure the fruit. One pound of white hellebore powder is enough for sixty trees, and is best applied with a hand syringe. I have tried this plan for years and found it to answer." And Mr. William Taylor thus refers to his mode of extirpating the pest—"Hellebore powder, I observe, is strongly recommended by some of your correspondents for destroying caterpillars, but I will not run the risk of poisoning my employers, who eat Gooseberries very freely. The only safe and effectual remedy tried for caterpillars inside the Gooseberry house was fir-tree oil, and that was applied four times during the season, drenching the bushes all over by means of a syringe with a bent nozzle, at the rate of half a pint of the oil to three gallons of water. It is rather expensive to use in so large a way, but I do not expect to have so much trouble again, and I am in hopes of getting rid of the enemy altogether. One dressing was given after the Gooseberries were ripe, and that did not injure them, although applied during sunshine, the taste passing off in two or three days; but some Currants in the same enclosure were injured by using it on them after they were ripe, though it did not harm them in the earlier stages. I find that different samples of water make a very great difference to the efficacy of this insect-killer: that which is soft and has been exposed a long time to the air being the best, while hard water is almost useless. As a rule, I think the whiter the water turns when the oil is put to it, the more efficacious it is likely to be." Mr. Laxton shakes the bushes violently, or rather strikes the branches sharply, so as to dislodge the caterpillars; and when they are on the ground he covers them with soot, thus destroying the pest and manuring the trees by the same operation.

THE CURRANT-SHOOT GRUB.—Everyone acquainted with old gardens must have frequently noticed that one or more of the branches of the Currant trees tenanted them have suddenly withered and died without any apparent cause. In such cases, if the wood of the branch be split down the centre the pith will be found all consumed, the tube where it had been blackened, and nothing remaining but the excrements of a caterpillar, which may also be caught at his work of destruction if the examination is made so soon as the branch first shows symptoms of withering. This caterpillar is fleshy, whitish, with four yellowish brown spots near its head. It is the larva of the Currant fly (*Sphinx tipuliformis*, *Sesia*, or *Ægeria*, or *Bombecia tipuliformis*). The parent moth is beautiful, and may be seen at the end of May and early

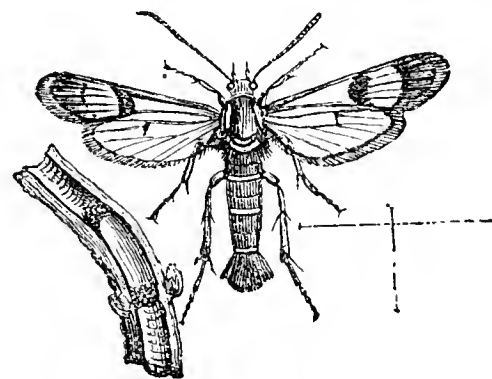


Fig. 93.—Currant-shoot Grub.

in June during hot sunshine, either settled on the leaves of the Currant, or flying around the flowers of the Syringa and Lilac. It is about three-quarters of an inch across the wings when these are quite opened; the prevailing colour is bluish black, with various parts yellow; the antennæ black; the breast with a yellow line on each side; the abdomen, or lower part of the body, has three yellow rings round it in the females, and four in the males; the fore wings are barred and veined with black; it has a brush of fine scales at the end of its abdomen, which fan it can expand as it pleases. The Red, White, and Black Currant, and we think the Gooseberry, are all liable to its attacks. It lays its eggs in April in openings of the bark of a young shoot, and the caterpillar immediately it is hatched penetrates to its pith, and eats its way

down this until it reaches the pith of the main branch. The only remedial measures are to kill the moth whenever seen, and to split down the withered branches and serve the caterpillars similarly.

## NOTES AND GLEANINGS.

AT a general meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, Major F. Mason in the chair, the following candidates were duly elected Fellows of the Society—viz., Miss Florence May Baird Smith, Colonel Blundell, Mrs. Bosman, Mrs. T. T. Bucknill, Alexander T. Cory, Dr. R. T. Daniell, Viscountess Folkestone, Sir George Macpherson Grant, Bart., M.P., Viscountess Harberton, R. Nasmyth Irving, H. Heming Johnson, Mrs. Henry Kent, Arthur Kimble, Mrs. Bonnor Maurice, Archibald Milman, William Pawley, J. Mostyn Pritchard, and Reginald Yorke, M.P. Major Higginson, R.H.A., and Mrs. Higginson, were elected guinea members.

— ON the old rockery at Kew one of the finest Forget-me-nots we have seen is now flowering; it is named MYOSOTIS DISSITIFLORA VAR. SPLENDENS, and is similar in habit to the well-known typical form, but is rather taller and more robust. The flowers are, however, considerably larger, some being half an inch in diameter, and the colour is an extremely bright clear blue. If the plant referred to is not an unusually healthy example, the variety is a valuable acquisition not only for the border or rockery but for growing in pots, as some specimens in the greenhouse at Kew well indicate.

— A NORWICH correspondent, "D. C.," writes as follows in reply to "G. O. S." concerning IXIAS:—"I would observe that, being natives of the Cape of Good Hope, they require a light open soil. Plant as late as possible and very early in December 6 inches deep in light soil. Do not cover them at all either with handlights or any other protection; they will come up quite soon enough without any assistance, and unless any unforeseen circumstance takes place every bulb will stand the spring, and by early summer they will be in perfection. Take them up in the autumn and lay them on the shelf of a hot greenhouse or in the sun, which is the temperature they undergo in their native habitats, where they enjoy a long period of rest. I have not lost a bulb this long trying cold weather."

— MR. W. CHARLEY writes as follows concerning PYRUS MAULEI—"On seeing 'W. K.'s' article in your last issue (page 393) I was rather disappointed that Pyrus Maulei was not included. Last autumn it was recommended to me, and I planted it in a shrubby border. This spring it has been covered with flowers and has been greatly admired. The tree is 5 feet high, the branches are pendant, and I think it deserves a better situation than a shrubby border. When it can be moved with safety I shall plant it out as a specimen."

— A LIST of PLANTS FOR DISTRIBUTION BY THE ROYAL HORTICULTURAL SOCIETY has been published, and it is stated that the Council are desirous that the privileges of the Fellows should be exercised to the utmost legitimate extent, in order that the cultivation of the most approved varieties of fruits should be promoted throughout the country for the public benefit. In former years plants were distributed by ballot, but on investigation the Council found the result was not satisfactory, as rare and valuable plants frequently fell into the hands of those who had not the proper appliances for their cultivation. Fellows are now entitled to select for themselves any plants which they

may desire to cultivate, and which, being the legitimate property of the Society, the Council are enabled to distribute. Every application must be in writing, and not more than one specimen of any variety or species can be supplied. Four-guinea Fellows and forty-guinea Life Fellows are entitled to select thirty plants, and two-guinea Fellows and twenty-guinea Life Fellows half that number. The list should be marked and signed by the Fellows and sent to the Superintendent, Royal Horticultural Society's Gardens, Turnham Green, who will forward the plants as may be directed, provided they are still in stock. Should any of the plants selected have been all distributed, others of a similar character may be substituted. The plants included in the list will be ready for distribution about the beginning of July, and will be distributed in the order in which the applications are received.

— THE CALCEOLARIAS AT BEDFORD HILL HOUSE, BALHAM, the residence of J. Brand, Esq., are extremely fine this year. The plants, about four hundred in number, as arranged in a house 100 feet long, have a remarkably rich effect. By careful selection and fertilisation Mr. Rapley has succeeded in establishing a strain of undoubted merit. The plants are not more remarkable for their large flowers of good form and varied colours than for their firm stout branching habit. Many of the plants need no stakes, and the growths have not once been stopped, yet the plants are as compact and sturdy as the most exacting cultivator could desire. Many of the flowers are 2½ inches in diameter, a yellow self of great smoothness exceeding that size, and the dark selfs and spotted forms are in all respects of superior quality.

— WRITING respecting GARDEN RANUNCULI, the Rev. C. Wolley Dod observes:—"Your correspondent in his notes on these last week omitted to mention one very ornamental plant, the double Ranunculus repens. This name may frighten gardeners who know it only as a most pernicious weed in wild shrubberies or new plantations, but it is easily kept within bounds on a border like other running plants by doubling back the runners to their parent, and so forming a compact mass of flowering heads. It bears flowers twice the size of those of R. acris on stalks half their height, and produces them freely."

— THE ROYAL HORTICULTURAL SOCIETY OF LIEGE announce that their twenty-eighth Exhibition will be held on the 24th to the 28th of July this year. Two hundred and six classes are provided for all the usual horticultural exhibits, 422 prizes being offered, consisting of gold, silver gilt, and silver medals of a total value of 11,265 francs. The chief distinguishing features are the number of classes for special exhibits, such as particular genera or families. These are arranged in the schedule under their great botanical divisions of Cryptogams, Gymnosperms, Monocotyledons, and Dicotyledons. Some of the most remarkable classes, or rather those which we are best accustomed to see in English exhibitions, are the following—Ten Gymnogrammas, six Platyceriums, twelve Cycadaceous plants, forty Caladiums, forty Marantaceous plants, a collection of Musaceous plants, and similar collections in Iridaceæ, Amaryllidaceæ, Bromeliaceæ, and Liliaceæ, with special classes for such Orchids as Cypripediums, Cattleyas, Vandas, Phalaenopsis, and Masdevallias. Other natural orders provided for are Piperaceæ, Euphorbiaceæ, Melastomaceæ, Myrtaceæ, Crassulaceæ, Apocynaceæ, Asclepiadaceæ, Solanaceæ, and Gesneraceæ. Bouquets, fruits, and garden implements have also several classes devoted to them.

— DURING the past and present week a great number of visitors interested in Orchids and rare plants generally, have inspected what was announced as a COLLECTION OF ODONTOGLOSSUMS AND MASDEVALLIAS AT MR. BULL'S NURSERY



AT CHELSEA. The display not only includes a rich assortment of the two genera indicated, but numerous examples of other Orchids, and these, arranged with great taste with ornamental-foliaged plants, form an exhibition of remarkable diversity and unquestionable attractiveness. The grand avenue of Cycadaceous plants and Tree Ferns in the winter garden forms a fitting approach to the brighter house beyond, in the centre of which are large specimens of the imposing Anthuriums Veitchi, Warroqueana, hybrida, and insigne, and a fine plant of the stately Aralia concinna. Around these and on the side stages intermixed with Asparagus plumosus, small Palms, and Sarracnias, are the Orchids. These include upwards of thirty forms of Odontoglossums, many of the varieties of *O. Alexandræ* being of great merit, and *O. Pescatoria grandiflora* of striking excellence, as also are many of the varieties of *O. vexillarium*, of which the number of plants is very great. Thirty forms of Masdevallias represented by numerous plants are also flowering, an example of *M. Russellianum* having 130 flowers. The others consist of the choicest kinds in cultivation. *Cattleya labiata Warneri* and *C. Mendelli elegans* are most beautiful, and *C. Mossiæ aurantiacum* and the finely frilled *C. Lawrenceanum* are extremely rich. The varieties of *Lælia purpurata*, *Bryasiana* and *rosea*, also command attention. Epidendrums are represented by *bicornutum*, *vitellinum majus* *prismatocarpum*, fine, and *Parkinsonianum*, all of which are in excellent condition, and the curious *Nanodes Medusæ* is suspended from the roof. This is a brief outline of an extensive and beautiful display, which is not likely to disappoint visitors who are enabled to inspect it. The exhibition, for exhibition it is, remains open throughout the present week.

— WE are informed that the REIGATE ROSE ASSOCIATION will hold their annual Show on July the 5th in the grounds of the Priory, Reigate, the residence of Lady H. Somerset.

— MESSRS. SUTTON & SONS have now a beautiful display of CALCEOLARIAS AT READING, one of the houses in their nursery being entirely devoted to those plants, which are excellent in every respect—dwarf, compact, robust, with fine heads of flowers and healthy foliage. The colours are surprisingly diversified. All the brightest and most delicate shades characteristic of the Calceolaria are represented, with several very distinct and attractive tints—one, a soft rosy purple, being especially noteworthy. The markings on the corollas are also greatly varied, some being heavily blotched with colour and others delicately laced or netted. In symmetry of form, size, and substance of flowers there is little left to desire, and still further improvements are now being effected in the habit and colours; and, owing to the careful attention bestowed upon selection of seed-bearing plants, some advance is notable every season.

— THE usual monthly meeting of THE METEOROLOGICAL SOCIETY was held on Wednesday, the 18th inst., at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President, in the chair. D. W. Barker, B. Jumeaux, W. Oelrichs, H. Porter, W. Roper, and Rev. G. R. Wynne were balloted for and elected Fellows of the Society. The following papers were read—"Comparison of Robinson's and Osler's Anemometers, with Remarks on Anemometry in General," by Richard H. Curtis, F.M.S. The author in this paper gives a very clear statement of the present state of anemometry, and points out the defects in Osler's and Robinson's Anemometers, which are the chief forms of recording instruments used in this country. "Notes on Waterspouts Observed at Cannes in January or February, 1872," by the Hon. F. A. Rollo Russell, M.A., F.M.S. "On some Swedish Meteorological Observations in Connection with the Return of the Seasons," by Alexander Beazley, M.Inst.C.E.

— THE lessees of the Alexandra Palace announce the fol-

lowing Horticultural Exhibitions to be held during the present season:—June 10th and 11th, Floral Decorations and Pelargoniums; June 17th and 18th, Strawberries and Cherries; July 2nd, Rose Fair and Gooseberries; July 8th and 9th, Rose Show.

## ROYAL HORTICULTURAL SOCIETY.

MAY 24TH.

NOTWITHSTANDING the near approach to the Great Show, there was by no means any falling-off in the number of exhibits at this meeting; on the contrary, not only was the Council-room well filled, but the conservatory also contained several large and handsome groups.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. W. W. F. Dick, Esq., Thames Ditton House, Surrey, sent a twin fruit of Rollisson's Telegraph Cucumber, for which a letter of thanks was awarded. Mr. W. Wells, Earlswood Nurseries, Redhill, sent Wells' Improved Cucumber, a cross between Telegraph and Blue Gown. It is a handsome Cucumber, and said to be very prolific, but the Committee did not consider it a novelty and superior to others in cultivation. Mr. G. Bethell, gardener to Sir Richard Wallace, Sudborn Hall, sent a seedling Melon called Bethell's Conqueror, a pink-fleshed, yellow-skinned, and finely-netted fruit, but the flavour was not of superior quality. Mr. Bethell also sent a Tomato called Sudborn Hall Perfection, which was considered very similar to Hathaway's Excelsior. Mr. Henderson, The Gardens, Thoresby, sent a dish of a Fig called Adam, a large and handsome green Fig, but as the Committee were not allowed to taste it they could give no opinion upon it. A cultural commendation was awarded. Mr. Miller, The Gardens, Clumber, sent a dish of James Veitch Strawberry of fine quality. Mr. Z. Stevens, The Gardens, Trentham, sent a Tomato in a pot called Trentham Early Fillbasket. It was found to be inferior in flavour, but as it was stated by Mr. Stevens to be a good bearer it may be useful for market cultivation. Mr. H. J. Clayton, The Gardens, Grimston Park, Tadcaster, sent a dish of Tomatoes. The variety was selected from Kaye's Early Prolific. The dish of six fruit weighed 3½ lbs., and the flavour was good. It was very much corrugated and coarse in shape. A cultural commendation was awarded.

FLORAL COMMITTEE.—J. McIntosh, Esq., in the chair. Messrs. J. Veitch & Son, Chelsea, exhibited a group of new plants, containing the following in addition to the Gloxinias, which were certificated and described below:—*Serissa foetida flore-pleno*, a dwarf plant with small bright green leaves, and double white tubular flowers about half an inch in diameter; *Pleopeltis albidula squamata*, a dwarf Fern with pinnate or trifoliate dark green fronds, bearing small whitish scales; *Croton recurvifolius*, with short recurved leaves, dark green, veined with red and yellow; and *Astilbe Thunbergi*, which was certificated, and is described below. Mr. H. Cannell, Swanley, Kent, exhibited a plant of the fine double scarlet *Tropæolum Hermine Grasshoff*, and flowers of *Tropæolum canariense* "improved," a very pretty variety with regular bright yellow flowers, each of the petals being blotched in the centre with maroon. The useful double white *Campanula persicifolia alba flore-pleno* was also represented by flowers and plants. A vote of thanks was accorded to Mr. Cannell for the Campanulas. Messrs. Rivers & Son, Sawbridgeworth, sent several seedling semi-double Zonal Pelargoniums.

The General Horticultural Company sent several new plants, among which were the following:—*Rhodea japonica aurea variegata*, a distinct variegated plant, certificated at the second spring Show of the Royal Botanic Society, and described on page 375; *Pteris serrulata cristata compacta*, a dwarf and neat form of this well-known Fern; *Rivina humilis variegata*, with racemes of bright crimson berries, small white flower, and variegated foliage. It was more like a form of *R. laevis*. *Philodendron Wallisi*, very pretty, already described; and *Pteris tremula* var. *crispa*, which is distinct from the ordinary form of *P. tremula*, the fronds being slightly waved. Messrs. J. Laing & Co., Forest Hill, sent a plant of a Tuberous Begonia named Thomas Moore; the flowers were of a great size, the larger petals being 2 inches in diameter, of a scarlet tint. A vote of thanks was accorded Messrs. James Carter & Co., High Holborn, for a basket of Carters' Queen's Prize Mimulus with very large flowers, the corolla bordered with rich crimson and maroon. Messrs. C. Lee & Son, The Vineyard Nursery, Hammersmith, exhibited three specimens of *Yucca elegans*, a neat and graceful form with narrow dark shining green leaves, rather more than 2 feet long and gracefully curved. Messrs. Barr & Sugden, Covent Garden, contributed a pretty collection of Daffodil and Iris flowers. The double white form of *Narcissus poeticus* was largely represented, and many other choice varieties. The charming little *Hyacinthus amethystinus* and its white variety were very attractive, resembling diminutive Scillas. Mr. W. Brown, Hendon, exhibited four varieties of decorative Pelargoniums, named Harry Buck, very large soft cerise, dark blotch in upper petals; Robert Green, very neatly formed flowers, brilliant colour with a tinge of scarlet; Enchanter, rather rough form but bright scarlet tint; and Stentor, with upper petals heavily blotched with black. The plants were all in vigorous health, and a cultural certificate was awarded. The Rev. H. Harpur Crewe, Drayton Beauchamp, Tring, sent a flower spike of an *Eremurus*, a native of Cashmere; the floral portion was about 8 or 9 inches in length,

the flowers being white and resembling some *Ornithogalum*s. It was referred to the Scientific Committee.

Mr. G. Parker, Winkfield, sent a variegated Zonal Pelargonium named Marian Harper, with numerous trusses of small pink flowers. Mr. J. H. Hawley, Ranelagh Gardens, Leamington, also sent a variegated pink-flowered Zonal Pelargonium, and a semi-double scarlet Zonal named Sir Charles. Mr. W. M. Crowe, Upton, Essex, exhibited two varieties of Tree Carnations—one, bright scarlet and very free, named General Roberts, the other salmon tinged with scarlet. Mr. J. Fry, gardener to J. Baker, Esq., Haydon House, Eastgate, Pinner, was accorded a vote of thanks for a stand of *Gloxinia* blooms of Veitch's strain, diversified in colour and of good form. Mr. Maurice Young, Milford, Godalming, sent flowering branches of the Snowdrop Tree (*Halesia tetraptera*), figured in this Journal in 1879. Mr. P. Wallace, Winkfield, near Windsor, was accorded a vote of thanks for a stand of twelve florists' Tulip flowers in excellent condition. Sir Charles Strickland, Bart., Hildeby, Malton, sent a plant of *Lælia majalis* on a block, and bearing two large flowers. Mr. Abbage, gardener to J. S. Bocket, Esq., The Hall, Stamford Hill, sent plants of *Calanthe vestita major* and *Trichopilia suavis alba*, the latter being certificated.

There was a pretty display in the conservatory, one of the principal groups being that from the General Horticultural Company, Warwick House, Regent Street, chiefly comprising *Dracenas*, *Crotons*, *Gloxinias*, and Ferns; many novelties were also included, and the plants were all in admirable condition, but no award had been made for them when we left the Exhibition. Mr. J. Aldous, Gloucester Road, had groups of variegated Maples, Fuchsias, Pelargoniums, *Ericas*, and Mignonette, for which a bronze Banksian medal was accorded. Messrs. Osborn & Sons, Fulham, S.W., staged a pretty group of hardy plants, including several new and choice plants. In the centre was a basket of the new variegated Ivy, *Hedera helix madeirensis variegata*, the centre of the leaf very bright green, with a broad white margin. *Spiræa japonica aurea* was also well represented, with plants of *Primula cortusoides amena*, the dwarf Phlox frondosa, *P. divaricata*, *Camassia esculenta tardiflora*, *Scilla patula*, *S. campanulata*, and many other plants.

Calceolarias formed a brilliant display. Mr. W. Rapley, gardener to J. Brand, Esq., Bedford Hall House, Balham, had a large group of handsome plants in admirable condition, the flowers being of great size and very bright colours. Some were remarkably richly marked with crimson or maroon, and the large yellow self certificated was especially noteworthy. A silver Flora medal was accorded. A similar honour was adjudged to Mr. J. R. Bird, gardener to J. A. Causton, Esq., Lodgemore, Alleyn Park, West Dulwich, who also sent a handsome collection of Calceolarias, comprising some fine plants with a great diversity of colours. The group was margined with *Gloxinias* and *Adiantums*, arranged alternately. The *Gloxinias* were generally in fine condition, the flowers large, and colours rich. Mr. Charles Noble of Bagshot sent a pretty group of dwarf Clematises comprising a number of handsome varieties. A purple-flowered variety named George Eliot possessed a very distinctly marked and delicate fragrance. A remarkably handsome semi-double white variety was also shown named Lady Constance Kennedy, one of the finest varieties in commerce. Other varieties especially noticeable were Imogene, white; Pirate King, dark purple; Aurora Leigh, large French white; Mary Queen, white with a faint puce tint; Countess Gleichen, white faintly tinged with blue; Alonzo, fine purple; Undine, double purple; Aurora, double puce; Proteus, similar but larger; and Lady Wallace Campbell, double white. Several others were also very fine, one unnamed seedling having pale purple flowers  $8\frac{1}{2}$  inches in diameter, and of excellent form. A silver Flora medal was awarded. Mr. W. Brown, Hendon, had a pretty group of decorative Pelargoniums, very healthy and flowering profusely; but the most noteworthy feature of his group was a dozen plants of *Crassula jasminea* in 48-pots, the large white flowers being tied up in the market style, the heads being nearly a foot across. A highly attractive and interesting group of Cape Pelargoniums was contributed from the Royal Horticultural Society's garden at Chiswick, and an ornamental group of Azaleas, *Schizanthuses*, *Saxifraga nepalensis*, with an edging of *Adiantum gracillimum*, *Gloxinias*, and *Selaginellas*. Messrs. Hawkins & Bennett, Twickenham, sent a bunch of Lily of the Valley named Victoria; the bells were of great size, but probably that is due to their superior culture. Mr. Guyett, gardener to Mr. Perrett, Lynton House, Clapham Common, had a pretty group of miscellaneous plants, and was awarded a silver Banksian medal.

For the following plants first-class certificates were awarded—

*Gloxinia Lady Marriott*.—This and the two following were shown by Messrs. J. Veitch & Sons. An erect-flowered variety, with neat blooms spotted with crimson and evenly margined with white. *Fabiola*.—Fine flower, spotted on the throat; centre of corolla lobes soft crimson, broad white margin. *Brantane*.—Very distinct. Flower of good form, medium size; throat netted or spotted with purple, fading to violet and white; margin faintly dotted with a light shade.

*Astilbe Thunbergi* (Veitch).—A Japanese plant with large pinnate leaves; the pinnules elliptical, serrated, and 3 to 4 inches in diameter. The flowers are white, and produced in large spreading panicles or compound racemes, on which they are closely placed. It is an elegant plant, and will no doubt become a general favourite.

*Reseda odorata flore-pleno prolifera alba*.—Mr. W. Balchin, nurseryman, Hassocks Gate, Keymer, Sussex, obtained a certificate for this

very remarkable Mignonette. The flowers are globular in form, comparatively large, and very full of narrow white petals; and at the side of each flower a small shoot appears, which is said to become elongated and bear flowers successively after the old one has faded. The spikes are 3 to 6 inches in length and thickly clothed with flowers, which possess a strong and agreeable fragrance.

*Rubus deliciosus* (C. Lee & Son).—A beautiful hardy shrub, bearing abundance of large white blossoms something like a single Rose. The petals are broad, and though the individual flowers are of rather short duration they are produced so freely that the plant appears to be literally "a mass of bloom." A specimen at Kew in the herbaceous grounds is now remarkably fine, and well indicates the character of this valuable shrub.

*Calceolaria Cloth of Gold* (Rapley).—One of the finest varieties we have seen in regard to size of flower. These are a bright sulphur colour, and average from  $2\frac{1}{2}$  to 3 inches in diameter, being of proportionate substance. The plant shown was in a 48-size pot, and bearing several handsome trusses of flowers.

*Trichopilia suavis alba* (Bockett).—A pretty pure white variety of the well-known type. The lip is large with a dash of yellow in the centre, but otherwise quite devoid of colour, as are also the petals and sepals. Each plant was bearing several flowers.

*Clematis W. E. Gladstone*.—This and the two following Clematises were included in Mr. C. Noble's group in the conservatory, and were there observed by several members of the Floral Committee, who unanimously awarded certificates for them. The one named above has remarkably large and handsome flowers of excellent form and substance; some were fully 9 inches in diameter, the sepals being proportionately broad and of good form. The colour is pale purple, lighter in the centre of the sepals.

*C. Lady Constance Kennedy*.—Flower pure white and semi-double—that is, with two series of broad petals. Very free, and altogether a beautiful variety.

*C. George Eliot*.—Remarkable for possessing a very distinct fragrance, considered by many to faintly resemble Violets. The flowers are of medium size and excellent form; colour bright purple.

SCIENTIFIC COMMITTEE.—*Sarracenia Popei*.—In this species Mr. W. G. Smith remarked that the stigmas was quite closed, and the petals completely hid the stamens, so they could only be seen after the petals had arisen in the way described at the last meeting.

*Ontario Poplar*.—Dr. Masters exhibited an injured specimen, supposed to be affected by some insects, which, however, could not have caused the injury. Sir J. Hooker remarked upon the rapid growth of the Ontario Poplar, and that it was particularly liable to decay.

*Gynantherous Wallflower*.—Specimens of this well-known malformation were forwarded by Mr. Leipner from the Bristol College, in which the stamens are changed to carpels.

*Lilium Martagon*.—Specimens found growing near a wood of Pinus Pinaster, near Croydon, were sent by Mr. Stokoe, who raised the question whether it was wild or not at that locality, intimating that the seeds might have been brought by birds.

*Banksia Fruit*.—Dr. Masters exhibited a specimen from which seeds had been taken fifteen years old, which had germinated and grown into robust plants. They were raised by Mr. J. S. Cousins. Colonel Clarke observed that he has raised Peas after keeping them in pods for ten years.

*Cryptomeria elegans*.—Dr. Masters exhibited a specimen with cones.

*Coherent Buttercups*.—He also exhibited three Buttercup flowers coherent, though the flower stalks had not united immediately below them, though they were coherent at the base. Mr. W. G. Smith remarked that he once figured a Fir tree which had two leaders coherent into one.

*Primula Stuartii*.—Mr. M. Foster exhibited a flowering plant from North-west Himalayas. *Iris statella*.—He showed this species from the Botanical Garden of Palermo. It is allied to *I. italica* and *pseudopumila*, but ovary is distinct from both. The origin was unknown, possibly being a hybrid. It was received from Todaro. He also showed a bud of *I. erratica*, allied to but is smaller than *I. lutescens*. He exhibited a pod of *I. tectorum* full of seed, the result of self-fertilisation. Colonel Clarke remarked that Cowslips crossed by Primroses would often cause the ovary to swell, but there might be no seed formed—a fact long ago observed by others, as by Max Wichera on Willow, as recorded in the Horticultural Society's Journal. He also made remarks on the dispersion of *I. Evanesca*, that it only was found east of North America, from Florida to Lake Ontario; that it is found in China and Japan and as far as Nepal, but then ceases.

*Eremurus*.—A fine spike of white flowers was exhibited by Rev. H. H. Crewe of an unknown species of this genus from Cashmere. A botanical certificate was awarded. He showed the following species of Tulips:—*T. maculata*, *oculis-solis*, *spatulata*, *scabris-capæ*, *Didieri*, *viridiflora*, and *carinata*. Sir J. Hooker remarked that considerable doubt had been expressed as to whether any of the supposed wild species about Florence were not really escapes from cultivation.

A communication was read with reference to the proposed removal of the Herbarium of Florence from its present excellent site and building to a much more disadvantageous one, and a general expression was made as to the undesirability of the change.

LECTURE.—The Rev. G. Henslow took the Pelargonium as the subject of some remarks, as there was a fine display of species and rare varieties from the Society's Gardens at Chiswick. He alluded to the earliest species introduced in 1632, named *triste*, and called in John-



son's "Gerard" *Geranium indicum*. It was brought by Mr. John Tradescant. Linnaeus called the genus *Geranium*, but L'Héritier changed it to *Pelargonium*, as the structure of the flower differs considerably, being irregular, having the usually seven fertile stamens united by their filaments, and a long tubular neetary adherent to the pedicel; whereas *Geranium* is regular, has ten stamens, and no tubular neetary, but honey glands instead. He showed drawings to illustrate the vast difference between the original type and the latest improvement acquired by horticulturists. These began about the year 1812 in England, many species having been introduced before that date. Thus, before 1732 six species were grown at Eltham. In 1812, 102 species were in England, but after that date experiments by crossing began, and were published regularly by Robt. Sweet till

1830, the improvements being in size and colour, the long narrow petals changing to a round Rose-leaf-like form; veins disappeared, and a clear broad mass of colour appearing on the two upper petals. The present multitude of forms is now subdivided into groups, such as the large-flowered section, the Zonal section, variegated, and double-flowering varieties, &c. Amongst the many species and varieties exhibited was *P. inquinans*, which had given rise to the "Nosegay" scarlet forms, several Ivy-leaved white, double, &c., the crisped-leaved and seented group; but it appears difficult to trace back the origin of the large-flowered kinds to the original species which gave rise to it. A plant with pink flowers and variegated foliage, exhibited by Mr. Parker, was remarkable for the great tenacity of its petals. This appeared to illustrate the principle of "compensation,"



Fig. 94.—*CRATEGUS COCCINEA*. (See page 424.)

which the lecturer had more than once described, for the pollen was very scanty and inefficient, the loss in that direction being counterbalanced by the firmness and tenacity of the petals.

The lecturer next commented upon the corollas of *Geranium* and *Erodium*, which are regular, while that of *Pelargonium* was irregular. He suggested that the latter condition, which was for the most part found in axillary flowers and those which are situated to the side of plants, while regular flowers are terminal. The irregularity has probably been brought about by the visits of insects, and when irregular flowers are perpetually fertilised by artificial means they not unfrequently reassume their regular character. This is seen in *Pelargoniums* and *Gloxinias*. With regard to the structure of the

flower the lecturer entered into details, showing the peculiar differences in the methods of fertilisation both in *Pelargoniums* and in true *Geraniums*. Thus, while in the common scarlet, and especially the paler varieties, such as the pink Christine, the anthers mature simultaneously with and stand about the stigmas, so that it fertilises itself with great ease; other forms, such as the Oak-leaved or Lemon-seented, is strongly "proterandrous"—i.e., the anthers mature, shed their pollen, and even fall off before the five branches of the stigma are ready to receive the pollen, which they must do from another flower. In this instance the antherless filaments retire and hang down, while the stigmas now rise up and occupy the exact position maintained by the anthers previously. The lecturer then illustrated



similar conditions in *Geraniums*. Thus, in *Geranium pratense*, our largest-flowering wild species, both the sets of five stamens mature before the stigmas. In *G. pyrenaicum*, which has a smaller flower than the last, the first set are over before the pistil matures, which it does simultaneously with the second set of stamens. In *G. molle* it is the same, only the corolla is still smaller; but in *G. pusillum*, which has the smallest flower of any, the pistil matures first and the stamens afterwards. This condition is called "proterogynous."

Mr. Henslow then explained how, as he believed, this has come about. That whenever a flower has a large corolla, well-developed stamens, and much pollen it will be found to be proterandrous, simply from the fact that those outer whorls require so much nourishment that the pistil is delayed in its development. In proportion, however, as the corolla and stamens are relatively small then the pistil is enabled to mature more rapidly, and even to precede the development of the stamens, and thus become proterogynous. He next called attention to the honey nectary which forms a long tube adherent to the pedicel, and compared it to the "spur" of *Tropæolums*, in which plant it was free and not "adnate" to the stalk, a character which separated these so-called *Nasturtiums* from *Pelargonium*, both belonging to the same tribe of the family *Geraniaceæ*. The peculiar character of the fruit called for some remarks. The carpels separating in *Geranium* from a central beak-like prolongation of the axis by curling upwards, but in *Pelargonium* and *Erodium* the carpels twist also, forming a long spiral-like awn. This is extremely hygrometric and uncoils when moistened, the use being, as Dr. F. Darwin has shown, to enable such fruits to bury their seeds by the upper part catching amongst the leaves of plants, and so securing a *point d'appui* when the "awn" uncoils in wet weather, and screws its sharp-pointed fruit into the ground.

#### CRATÆGUS COCCINEA.

NEARLY two centuries have elapsed since this tree was introduced to our gardens from North America, and yet it is by no means frequently seen in gardens and pleasure grounds. We much fear that, owing to the crowding system of planting shrubberies that has been fashionable during the past few years, many deciduous flowering trees have not been permitted to develop in a natural manner and arrive at a satisfactory flowering state. Many deciduous trees that would have been objects of beauty if space had been afforded them have been crowded out and cut away to make room for some formal Conifer, as the best mode of rectifying errors in planting! We should like to see greater discrimination in planting trees in the positions that are most suitable for them, and to see more well-grown specimens of beautiful flowering trees associated with evergreens, and on the fringes of ornamental plantations. *Cratægus coccinea*, so named from its scarlet fruit, is a most distinct and attractive spring-flowering tree, and a good specimen never fails to command admiration. The figure on page 423 represents the character of the species. Both the flowers and foliage are large, and a tree 15 to 20 feet high, with its natural round head, forms one of the finest ornaments of the pleasure ground during April and May.

#### OLD AND NEW PEACH TREE TRAINING.

MR. SIMPSON, writing under this heading (see page 393), thanks "SINGLE-HANDED" for his information concerning old authors who have advanced the "extension system in Peach culture." After a little criticism on the illustrations in the "Gardener's Assistant" Mr. Simpson gives us a statement of the produce of "four young Peach and Nectarine trees planted in 1878." It is unfortunate that he did not state distinctly how many of the trees were Peaches and how many Nectarines, for the sake of getting a proper estimate of the results of each. I think he should have been more explicit in the heading, too. Might I ask him which is the old and which is the new system of Peach-tree training?

Mr. Simpson invites those who have been so long ahead of him in the cultivation of the Peach to furnish him with particulars referring to the fertility and training of the trees. I have made it a rule for the last thirty years or more to leave the young wood its entire length at pruning time. I thin and cut out all the weak and useless branches not required, and train the trees in fan shape. I disbud early in the season, and if the terminal bud is not strong and healthy I disbud to the next strongest. I often use lateral shoots to fill up when required, but not otherwise. In disbudding I leave all the shoots requisite on the upper side only, having them as near the base as possible. I have no difficulty in keeping the trees well furnished with healthy young wood to the bottom under this system of training; I believe it to be the oldest, and the shortening of the shoots to be of a later date. I am sorry I cannot oblige Mr. Simpson with the information asked for referring to the fertility of young trees, but I have often gathered from three hundred to four hundred fine fruit from a tree grown as stated, and on walls outside.

In conclusion I might say that the system I have shortly described has been practised to my knowledge in most places in this district for more than twenty years, and this controversy cannot fail to "amuse" many, though they lack the courage of appearing in print.—A. LINDSAY, *Ditton Park, Slough, Bucks.*

I HAVE much pleasure in giving my old friend Mr. Simpson the information he asks for in last week's issue respecting the fertility of Peach trees trained on the system I described in the *Journal of Horticulture* a short time since. In doing so I take this opportunity to inform him, that when I wrote the paper referred to I was not aware that he had published a book on the cultivation of the Peach. My paper was in the hands of the Editor of this Journal before a notice of his book appeared in any of the gardening periodicals. My sole reason for writing was to prove that what is now called the "extension system of pruning and training the Peach tree" was not new, as has been supposed by some. The system has to my knowledge been practised for years before Mr. Simpson was born, and practised by me for more than twenty years! Mr. Simpson will, I am sure, excuse anyone in possession of these facts being "amused" at the articles that have appeared on this subject lately, and say with the wise man of old, "There is nothing new under the sun."

In old-established gardens the building and planting of Peach houses are of rare occurrence, and it falls to the lot of few gardeners to carry out such work. A gardener might live in a place all his life and not have the opportunity of doing either, as Peach trees properly managed will keep in good bearing condition for a much longer time than that; so that comparatively few gardeners will be in a position to supply Mr. Simpson with the desired information respecting the fertility of young Peach trees grown in houses. Were I to speak of my experience as a young man, I might say I was never fortunate enough to be at a place where a Peach house was planted during the time I was there, and my experience was not confined to one or two places, but to many. I made it a rule to see as much as possible and to learn all I could, and never to remain longer in any place than two years.

It fell to my lot some ten or fourteen years since to plant a Peach house 60 feet in length, 14 feet wide, and 16 feet high. At the time of my taking charge of the place I found the house considerably out of order. The trees were trained partly on an old turn-over trellis and partly on a trellis on the back wall. I had the trees and trellises all taken out, the house repaired, and a new trellis put up close to the roof. After making a new border four young trees were planted. They grew rapidly, producing good crops of fruit, and in four years they completely filled the house, and have continued to bear heavy crops of fine fruit yearly ever since. I also had a new house built here six or seven years ago and planted with four trees, which filled the house and produced 112 dozen fine Peaches in three years after being planted. I might say that the fruits were not counted on the trees, but counted as they were gathered to send away.

In order to answer Mr. Simpson's question I instructed my indoor foreman and one of the young men in the houses to count the Peaches on one of those trees on Friday last. A Royal George was chosen. The Peaches have thoroughly finished stoning some time since, and are now swelling off for the last time. I had string run up the tree from bottom to top at regular distances, and I told my men to be careful in counting, and each was to count separately all the fruits in the enclosures. After careful counting it was found that the tree was carrying a crop of no less than twenty-eight and a half dozen Peaches.

A gardener of experience and ability, and one whose opinion I value much at all times on gardening and other subjects, called on me a few days ago. While looking at the Peach trees referred to he said they were without doubt four of the finest Peach trees for their age he had ever seen in England, Scotland, or Wales.—A. PETTIGREW, *Castle Gardens, Cardiff.*

#### HENRY JACOBY PELARGONIUM.

As bedding-out is now in full progress let me recommend all who are able to do so to try a small bed of this brilliant semi-Nosegay variety. It is in my opinion without doubt one of the most valuable forms for massing that has been introduced during recent years. The plant is of free growth, yet dwarf, and is very floriferous; the trusses are good, and the petals adhere to them better than those of many varieties do, while the colour is of the most glowing crimson imaginable. It is richer than Charles Smith, and the plant is dwarfer than Charles Schwind, both of which are valuable for decoration in or outdoors. Henry Jacoby is also equally valuable for cultivation in pots. Well-grown examples in 5 or 6-inch pots have a very rich appearance in

summer in greenhouses or on window sills; while for winter decoration, and for affording bright cut flowers in the dark days, I do not know of one variety to surpass it. Those who are fortunate in having a few plants of the variety in question will do well to increase the number, and those who do not possess Henry Jacoby will not err by adding it to their collections, as, unless I am mistaken, it will become a standard Zonal for general decorative purposes. It is comparatively new, yet is not expensive, and may be had from the leading florists. If I were in the trade I should work up a stock and advertise it, as I feel certain it would do me credit. This very promising variety was raised by Mr. Pearson of Chilwell.—A LONDON PARK MAN.

#### VINES FROM LAYERS.

THERE is not, in my opinion, any system of raising young Vines now practised and recommended which possesses so many advantages as layering. Vines may be raised from layers in half the time usually required to obtain them from eyes. Those now being raised from eyes have no doubt been growing for the last three months, and they will continue to need attention for the next five months, and by that time probably not one in twelve will be sufficiently developed to bear fruit next season. If cut back and grown on again for another year they may be expected to show some bunches about the time they are twenty-four months old, but when layered a crop may be had from them in half that time or less.

At the present time we have a few Black Hamburgh Vines in pots bearing six and eight bunches, and these Vines were not rooted at this time last year. At the end of May some of the strongest shoots left near the base of the established Vines were layered to afford Vines for fruiting in pots this season, and they have done so well with so little trouble that many of your readers might try the plan with advantage.

Most Vines produce shoots from the base of the stems during the growing season; many gardeners rub these off as soon as they appear, but if they are allowed to grow a few yards long they are well suited for layering the following season. Being near the ground they need not be trained amongst the other shoots, but be tied across from stem to stem. Such a shoot will be found to mature sound eyes, which will start strongly into growth the following spring; the shoots then formed will be strong and short-jointed, and when they are a few feet in height they will be ready for layering.

This operation is very simple. A number of 6-inch pots should be drained and filled with a mixture of loam and manure, and each of these must be placed directly under the Vine shoot which it is desired to layer. A small notch is then made underneath each shoot on the old wood, and this part is placed in the soil in the pot, and a short thick wood peg is placed over the rod immediately on each side of the young cane and fixed in the soil; this keeps them firm until roots have been formed, which will quickly take place if care is taken to prevent the soil becoming dry. The young growths are still sustained by the old Vine, and the layering gives them no check, but it is well to stop each one as they become about 6 feet in height. This is a good length for a pot Vine, and by taking the point out of them then it causes them to swell. The young Vines may be left attached to the old rods until the pots have become quite filled with roots, and after being separated for a few days they may be transferred to 10-inch pots, and with good attention they will form fine fruiting canes the same season.—A KITCHEN GARDENER.

#### ROYAL BOTANIC SOCIETY.

MAY 25TH.

THE first Summer Show of the year was favoured by excellent weather, and the result was not only a beautiful display but a large attendance of visitors. The exhibits filled the large marquee and the corridor, the arrangements being generally satisfactory. The following is a brief report indicating the chief features of the Show and the most successful competitors.

*Stove and Greenhouse Plants.*—These were well represented. In the nurserymen's class for twelve Messrs. T. Jackson & Son, Kingston, secured the first prize with large and healthy specimens, all flowering freely. Messrs. B. Peed & Son, Lower Streatham, were second with good specimens, including a fine *Statice profusa* and *Allamanda grandiflora*. In the amateurs' class for ten Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was deservedly accorded the first prize for healthy specimens, including a very fine *Aerophyllum venosum*, *Tremandra ericæfolia*, and *Erica depressa major*. Mr. Tudgey, gardener to J. G. Williams, Esq., Henwick Grange, Worcester, was a very close second, also with large plants. Third, Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, with an even collection, *Aphelexis macrantha rosea* being

well flowered. For an amateur's six Mr. W. Chapman was first with fine specimens of *Dracophyllum gracile* and *Erica Cavendishii*, large, even, and well flowered. Mr. Tudgey was again a close second with smaller but neat plants; and Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, was a good third. An extra prize was deservedly awarded to Mr. J. Hinnell, gardener to F. D. Davis, Esq., Surbiton. Messrs. J. Jackson & Son, Kingston, were first with handsome specimens; Messrs. B. Peed & Son second with healthy *Aphelexis* and *Heaths*; and Mr. Henry James, Castle Nursery, Norwood, third with small plants in the corresponding nurserymen's class.

*Orchids.*—A magnificent bank of Orchids was contributed in the two classes devoted to them. In the amateurs' class for twelve Mr. J. C. Spyers, Orchid grower to Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, was first with very beautiful specimens. The finest were *Dendrobium Bensonianae*, *Odontoglossum vexillarium*, *Cattleya Warneri*, with fourteen large flowers; *Cattleya Mendelli*, with twenty flowers; *Cypripedium niveum*, and *Calanthe veratrifolia*. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was a close second, a fine variety of *Dendrobium Wardianum* and a large specimen of *D. nobile* being represented. Mr. Henry Hcims, gardener to F. A. Philbrick, Esq., Oldfield, Bickley Park, was a good third, *Sobralia macrantha* being very fine. In the corresponding class for nurserymen Mr. B. S. Williams, Upper Holloway, was awarded the premier prize for a beautiful specimen of *Cypripedium barbatum* with over forty flowers; *Lælia purpurata*, very fine variety with twenty flowers; *Oncidium concolor*, *Epidendrum vitellinum*, and many others in fine condition; Mr. Henry James and Messrs. Jackson & Son followed, both staging good specimens.

*Azaleas.*—Many fine Azaleas were shown, and taking them generally they have rarely been in better condition. For an amateur's six Mr. A. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, was first with tall pyramidal specimens, well furnished with flowers. Mr. Child was second with smaller but equally well flowered plants. Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was third with fairly good specimens. In the corresponding nurserymen's class Messrs. Jackson & Son secured the chief position with neat, healthy, globular-trained plants, Mr. C. Turner, Slough, following very closely. For six Azaleas in 12-inch pots Mr. Ratty was first, Mr. Child second, and Mr. Wheeler third. In the open class for twelve specimens Mr. R. Ratty was the most successful exhibitor, having bright and vigorous plants and securing the chief prize. Mr. C. Turner was a close second with well-flowered plants; and Messrs. Jackson & Son were third. An extra prize was awarded to Mr. Wiggins, gardener to H. Little, Esq., Uxbridge, for neat specimens.

*Fine-foliage Plants.*—As usual several fine groups of these were exhibited. For six specimens (nurserymen's class) Mr. B. S. Williams was first with a good selection of plants, Mr. Henry James following with small plants. In the amateurs' class Mr. H. Cole, gardener to J. Lawless, Esq., Exeter, was first with a handsome *Gleichenia rupestris glaucescens*, *Livistonia altissima*, and *Alocasia intermedia* among others. Mr. C. Rann was a good second with a fine collection, including two remarkably fine *Crotons*, *C. Andreanus* being particularly handsome. Mr. Tudgey was third with healthy examples of *Pritchardia pacifica* and *Kentia gracilis*. An extra prize was awarded to Mr. Wheeler for some good specimen Palms among other plants. For six exotic Ferns (nurserymen's class) Mr. B. S. Williams was first with handsome *Gleichenias* and other choice Ferns. In the amateurs' class for the same number Mr. G. H. Cole was placed first with fresh healthy specimens, *Davallia Mooreana* being especially fine. Mr. Douglas was second.

Messrs. Paul & Son, Cheshunt, were the only exhibitors of nine Roses in pots, securing the first prize for grand plants similar to those shown at Alexandra Palace recently. Mr. C. Turner was the chief exhibitor of six *Pelargoniums*, and was adjudged the first prize. Mr. Wiggins, Tottenham, was second for neat plants with very large flowers. Mr. J. Wiggins taking a similar place in the amateurs' class, followed by Mr. C. Hammond, gardener to F. Huntly, Esq., Stamford Hill.

Miscellaneous exhibits were numerous and of excellent quality. A silver-gilt medal was awarded to Messrs. James Veitch & Son, Chelsea, for a large and handsome group of Roses in pots arranged with small Maples. The Roses were in excellent condition, and were greatly admired. Mr. B. S. Williams, Upper Holloway, was awarded a silver medal for a pretty group of miscellaneous flowers and fine-foliaged plants, including several novelties. A large silver medal was adjudged to the General Horticultural Company for an imposing group of new and choice plants, chiefly *Dracænas* and *Crotons*, both remarkably well coloured. The margin of *Gloxinias* and *Adiantums* was also pretty. A silver medal was secured by Messrs. Wm. Cutbush & Son, Highgate, for a novel and effective group, comprising variegated Maples, *Abutilons*, *Myosotis*, white Daisies, Lilies of the Valley, and small *Heaths*. Some examples of *Erica Cavendishii* were especially notable for the vigour and the number of large flowers they bore. Messrs. Richard Smith & Co., Worcester, were awarded a silver medal for a collection of *Clematises* in fine condition, several bearing large flowers. Messrs. George Jackman & Son, Woking, contributed a handsome group of *Clematises*, comprising twenty fine plants, the flowers large and colours good. A silver-gilt medal was awarded. A silver-gilt medal was adjudged to Messrs. Paul & Son for a large group of Roses in pots—fresh,

healthy, and well-flowered. Many plants were certificated, and will be described next week.

### CARPET BEDDING.

THE design for a carpet bed, which is shown on fig. 95, is quite different in style to the one published last week. Provision is made for a large groundwork of green, which is always a pleasant relief for the brighter colours. A proposed mode of planting is

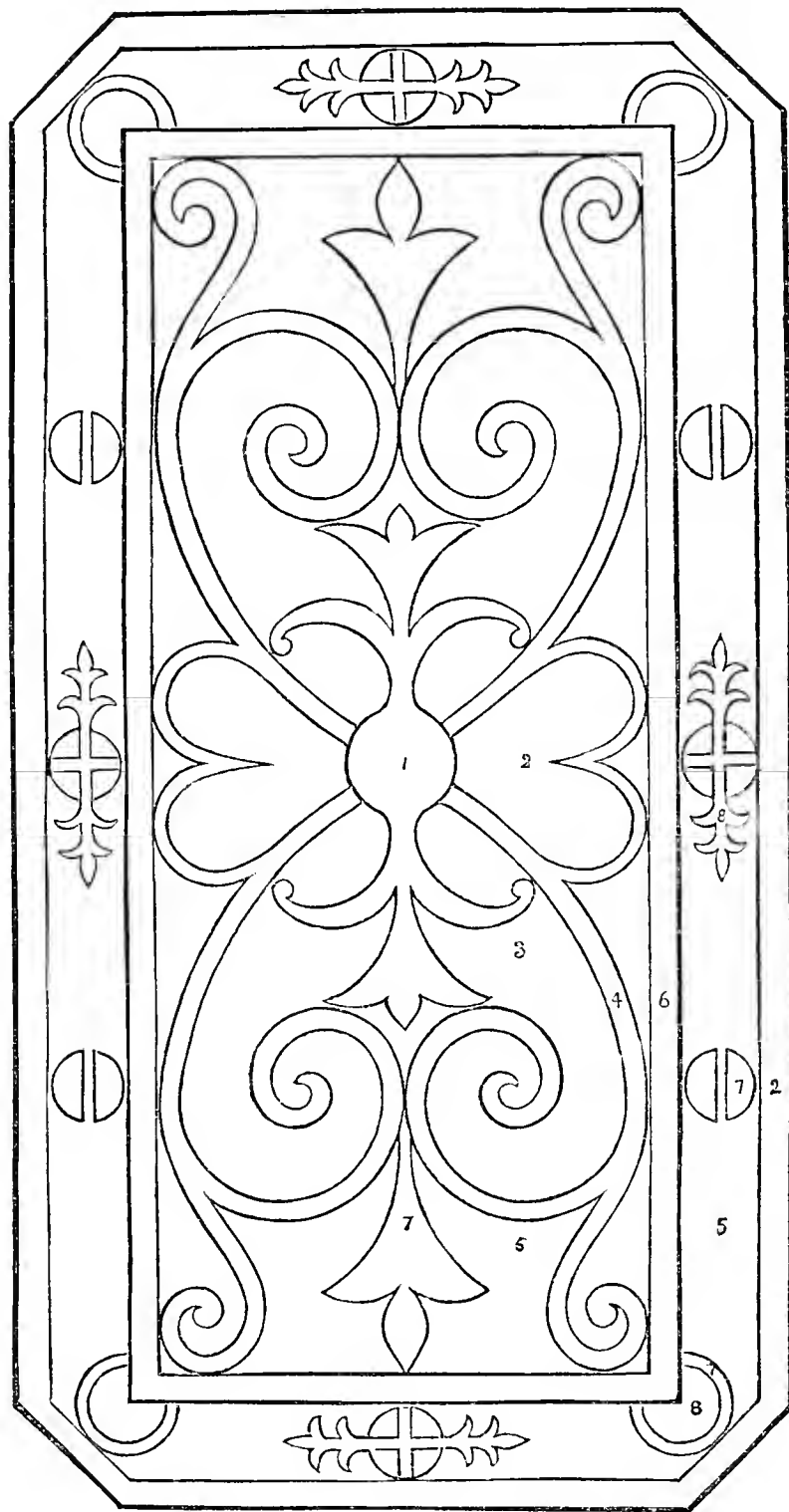


Fig. 95.

submitted, but the arrangement can be varied according to the plants at command. As will be seen, a choice of plants is afforded for some of the panels, any one of which will be suitable for the positions indicated.

1. *Alternanthera amœna*.
2. *Sempervivum montanum*, *Pachyphytum bracteosum*, or *Kleinia repens*.
3. *Leucophyton Brownii*.
4. *Pyrethrum* (Golden Feather).
5. *Mentha*, *Herniaria repens*, or *Veronica Loudoniana*.
6. *Alternanthera* of any kind.
7. *Meibomiaanthemum cordifolium variegatum*.
8. *Alternanthera amœna*, or any other dark variety.
9. *Echeveria secunda glauca*, or *Sedum glaucum*.

### THE FRUIT CROP.

I AM very glad to see that Mr. Taylor is interesting himself as to the amount of damage done to hardy fruit trees by excessive

winter frosts. All know of the damage done to shrubs and evergreens. It is my opinion that the damage is not so serious this year as last, the wood being in better condition; but it is a very great mistake to suppose that all Apples and Pears can stand 39° of frost during winter with impunity. But that some varieties can stand it I readily believe. Now is the time to make our observations. Understand, it is not the actual embryo fruit bud that is injured by severe frost in winter, but it is injury done to the wood that prevents the sap flowing to support the young fruit that results in the crop failing. The tender Pears I have no hope of, but the Hesse and such Apples as Lord Suffield I have little dread of. Let us all be careful observers, and be slow to be of that army always to the front with their variable excuses. To read some reports one would be led to think that Nature had made no provision whatever either against winds, rains, or other climatic changes. Here we have had rather severe frosts lately: but as all was dry Apples, Pears, and Gooseberries were not in the slightest injured.—JOSEPH WITHERSPOON, *Chester-le-Street, Durham*.



### KITCHEN GARDEN.

EVERY crop is in a very backward state, and yet the germination of seeds has been wonderful considering the ungenial weather. Every effort should be made to keep the hoe at work in dry weather between the rows of root crops, so that the growth may not be impeded by weeds. Sow late Peas in a well-enriched piece of ground. Ne Plus Ultra and Emperor of the Marrows are fine varieties. Continue to earth-up and place sticks to advancing crops of Peas as they become ready. Broad Beans also should be slightly earthed, and a successional sowing made. Sowing Beet must not be longer deferred, and there is yet time for Scorzonera and Salsafy. Another sowing of Scarlet Runners may be made between now and the beginning of June, also Dwarf Kidney or French Beans. Turnips owing to the dry weather have suffered from the Turnip fly, but this has been kept under by dustings of quicklime when the plants were wet with dew. A sowing of Cauliflowers should be made from the 20th to the 24th for late use, and for lifting to plant in frames to afford a supply in severe weather. As Potatoes advance in growth keep the soil drawn up to them, and if necessary, where they are planted wide, fork between the rows, and plant out Brussels Sprouts, &c. Seed of Sweet Basil, Sweet Marjoram, and other herbs may yet be sown on a sheltered border. Chicory for affording roots to be placed in a Mushroom house to give blanched heads for winter salading, should now be sown in rows 12 to 15 inches apart, thinning to 9 to 12 inches distance. Asparagus-cutting will be in operation daily, and if it be necessary to have recourse to cutting any that will be required for forcing, it must not be continued for a long period, or the roots will be so weakened as to be unfit for forcing next season. The planting-out of early crops of Celery may be proceeded with in beds 4½ feet wide, placing the plants across the beds 12 inches asunder, in rows 15 inches apart. Make successional sowings of Turnips, Spinach, Radishes, and Lettuce to insure the succession unbroken. Rhubarb should have all flower stems removed, and in order to secure a fine growth supply liquid manure liberally, and mulch with partially decayed manure. Seakale also should have any flower stems and any blanching material removed when the heads are cut, and the ground pointed over. Attenuated crowns may be cut back with advantage. Mulching or surface dressings 2 or 3 inches thick of partially decayed manure is a commendable practice, especially in light shallow soils, and is of great benefit to Peas, Beans, Cauliflowers, and other crops.

Supply water liberally to Carrots in frames, and draw out when ready every alternate one. Supply water and liquid manure to French Beans in pots or in pits abundantly, and keep the pods closely picked. Forward in pits or otherwise the growth of Capsicums, shifting them into larger pots as necessary, and keep them free from aphides. Harden Tomatoes in frames preparatory to planting them out of doors. Proceed with planting out ridge Cucumbers



and Vegetable Marrows, affording if possible the protection of hand-lights. As frames become cleared of early crops of Potatoes utilise them with Cucumbers or Melons.

#### HARDY FRUIT GARDEN.

The recent frost (12° during the night of May 12th), has not been so disastrous as might have been expected, for the soil was dry and the foliage more forward than when the blossoming occurs earlier. Growth is now rapid, and will necessitate prompt attention in stopping or removing the foreright shoots of Apricots, and side shoots not required for extension. Lay in young growths for filling vacant space or displacing parts that have become bare of spurs, which if not now bearing fruit may at once be cut out, or as soon as the fruit is gathered, and any attenuated spurs may be shortened to growth at the base. Keep a strict look-out for caterpillars. Attend betimes to thinning the fruit, leaving the finest and best situated for ripening. If the trees are in small borders and the soil is dry mulch with manure after giving a thorough supply of water, and assist trees carrying a full crop of fruit with liquid manure. Plums against walls will soon require attention; indeed disbudding foreright growths will need immediate attention, and any overgrown spurs may be cut back so as to encourage those better situated. Peaches and Nectarines are producing fine healthy foliage, and should as soon as practicable have the disbudding completed and the growth regulated as indicated in our last calendar. Promptly apply an insecticide if aphides appear, and apply flowers of sulphur should mildew be noticed. Cherries promise well, and should have attention in disbudding or stopping foreright shoots, and making provision for filling up vacant spaces. Carefully examine the foliage of fruit trees, destroying caterpillars if any exist, which soon disfigure both foliage and fruit. Nut bushes are frequently injured by caterpillars, this being a good time to search for and destroy them. An abundant crop of Gooseberries and Currants appears assured and so far are clean, but nevertheless frequently examine for caterpillars, and whenever they appear dust at once with freshly ground hellebore powder. Disbud and regulate the young shoots of Vines where they are trained to walls, and if mildew appear have recourse to sulphur. Do not overcrowd the growths, but train so as to admit plenty of air and light. Mulch bush and pyramid fruit trees with good manure, especially weakly trees in light soil, and if dry weather prevail supply water freely. Recently planted fruit trees should be mulched with short littery manure, and have a good watering. Strawberries should be mulched with littery manure, and in dry weather have copious waterings. Fruit for dessert should have the trusses supported with sticks, so as to keep it from the ground and insure superior quality by exposure to light and air, and if extra fine fruit is wanted thin them, leaving only the finest. Strawberry plants that have been forced and the fruit gathered should as soon as possible be planted out, firming the soil well about them, giving at least one good watering, and these if kept free of weeds and runners will produce an abundant crop of fruit next season.

#### FRUIT HOUSES.

*Peaches and Nectarines.*—Desirable as are the very early Peaches they do not as a rule set well, and for size and quality are not comparable to the older varieties, such as Royal George, Grosse Mignonne, Noblesse, Violette Hâtive, Stirling Castle, and Late Admirable. Acquisitions, however, are Hale's Early and A Bec, which set well and finish satisfactorily; Early Grosse Mignonne is also valuable. In Nectarines Lord Napier is a capital kind, swelling to a good size and coming much in advance of Elruge and Violette Hâtive, which are unrivalled for forcing. Trees in the earliest house from which the fruit has been gathered should have the bearing wood cut out, so as to admit of that for next year's crop having the benefit of light and air. There must not be any deficiency of water at the roots, and syringing must be practised twice a day to keep down red spider. The trees started early in the year have the fruit well advanced for ripening, and any leaves overhanging the fruit should be drawn aside or shortened so as to admit of the fruit colouring. Still continue syringing in fine weather until the fruit commences ripening. Clear rain water only should be used; hard water leaves a deposit on the fruit and is a great blemish. In the succession houses tying down

the shoots and thinning the fruit will now be the principal routine required. Give the inside borders some liquid manure occasionally during the time the fruit are in their first swelling, removing the covering material from external borders, and if at all dry give a thorough watering with tepid water, and in the case of weakly trees or those carrying a full crop afford liquid manure at 80°.

*Cherry House.*—The fruit is now quite ripe, and when the whole crop is in that condition the object will be to preserve them fresh and plump for some time. Shading should not be resorted to unless prolonging the season of supply be very desirable, or the foliage or position of the trellis is such as to expose the Cherries to the direct rays of the sun: under such circumstances it will be beneficial. A free circulation of air should constantly prevail in the house, and in dry hot weather damp the borders occasionally. There must not be any neglect in watering, and as soon as the Cherries are gathered recommence syringing the trees. Trees in pots will require daily attention in watering, and do not remove them from the house until the buds are well formed; then stand the pots on a bed of ashes in a sunny position, surrounding the pots with ashes, which will prevent the sun's rays acting on the roots.

## THE BEE-KEEPER.

### LAW ON BUILDING DRONE COMB—OVER-SWARMING.

MANY thanks for your sound advice to me for introducing a Ligurian queen. That advice I followed, and made an artificial swarm out of the straw skep I told you of, and the new queen was accepted all right. I now desire to ask when I can make another swarm from the same skep. It has its old queen yet, and is very strong. The last one, on the 13th inst., was made by removing the old hive and putting the new one on the old stand. Would you advise me to drive the queen with them this time, or would you advise me to give them a comb containing Ligurian eggs from the one introduced on the 13th inst.? These are things I am thinking of, but would like to have your opinion. In fact, I would venture to suggest that questions as well as answers should be printed. It would greatly help readers to understand the answer and apply it to their own case.—COMBER.

[Our correspondent's suggestion that the publication of queries *in extenso* would often help the reader to understand the reply more fully, we take to be perfectly accurate, and we have in consequence sometimes followed this course. We believe, in addition, that interest would be increased and a new light thrown often upon practical apiculture were our correspondents occasionally to give us their experience in following our or any advice, even if it be but the relation of a failure. For, as in moral matters "by the faults of others wise men correct their own," so in matters practical the failure of others may often be the occasion of our success. But to our correspondent's query.

We know from long experience that great increase in numbers is decidedly inconsistent with honey yield, and should therefore recommend that the frame hive and the skep be both now devoted to surplus gathering. It is easy to multiply stocks during the summer, and the temptation thereto is likely perhaps to make us overlook the fact that in doing this we shall have actually to feed while others are getting supers filled, and that after all when autumn is closing we may find ourselves, even if we are more than beginners, with many weak stocks instead of a few strong ones. As winter draws nigh uniting would, in these circumstances, become necessary, and quickly our large number of colonies sinks to fewer than we should have possessed had we been contented with a normal rate of increase. "In all labour there is profit," says the wise man; but the profit with us would have to take the intangible form of experience, the gain of which would make us better managers in the future. In our hearing, not long since, an American owner of 350 stocks was asked how colonies were to be made most profitable. His instant reply, "Keep as few as you can," though brief, contained not a little wisdom. As many bees, but as few colonies as possible, is undoubtedly the line along which alone large profits can be made.

If the skep in question be strong in numbers, and our correspondent is anxious rather for stock than supers, a second swarm may be made not earlier than about a fortnight after the taking of the first, which was done, we must remember, by confining an

imported queen in a cage in a frame hive and then placing this hive on the stand of the skep, which going to a new station was made to yield up all its flying bees to form a swarm, of which the Ligurian queen became the head. One plan suggested, however, in our correspondent's letter would not answer. It is giving a frame of Ligurian brood in a hive and placing this upon the stand the skep is now occupying. Of course the flying bees would constitute a swarm as before, and would raise in due time a queen from the Ligurian brood. All seems at first sight as it should be, and some books actually recommend this plan for making a swarm, but it is utterly bad notwithstanding.

It is a law with the bee that in the absence of a queen only drone comb shall be built, so that in this case the whole of the cards made during the first fifteen or sixteen days would encumber the hive with that which could be only used for store or for raising an unnecessary horde of consumers. So perfectly uniform is this instinct, that should bees build comb during the time a queen is caged amongst them awaiting their acceptance, the size of the cells formed will determine whether they are friendly disposed or not. If the former, they, regarding themselves as possessing a queen, build worker cells; if the latter, in the determination to raise a queen and reject the one offered them, they build drone cells.

If our correspondent can provide the made swarm with combs, or can furnish their frames with foundation the objection vanishes, for foundation\* settles the size of the cell and prevents even queenless stocks from building any but those of worker size. If it be especially desired to raise a queen from the Italian rather than the English brood, the old plan may be repeated of removing the queen from the swarm and placing her in a cage on the stand of the skep. She would be accepted as before, while the first-made swarm would raise queen cells in sufficient numbers to supply several for use elsewhere, but without any egg-laying for twenty-five days it would be quite unlikely to yield any surplus. The queen may be driven from the skep, but the successors there raised would be black, while the other plan at the worst would give hybrids.]

#### ARTIFICIAL SWARMING BEFORE DRONES APPEAR —PREVENTION OF CASTING.

PLEASE let me know if I can take an artificial swarm if I have seen no drones issuing from the hive; also whether the hive is as likely to throw off a second swarm at the end of ten days after taking an artificial swarm as if they had swarmed naturally.—BRIXTON.

[Drones in our hives are not important if other stocks at not more than half a mile or so possess them. At this date drones abound, and unless your position is one of complete isolation so far as bees are concerned we should regard the question of drones at home as not worth consideration, except as seeming to show that your hives are weak and not ripe for swarming. When bees are getting ready for natural colonisation drones are always raised, and artificial swarming should conform as far as possible to natural conditions. A few years since we raised nineteen Italian queens at once; and though we did not possess a black drone while Italians were in strong force with us, every one of our queens made a misalliance and produced hybrid workers. The probability of easting or sending out a second swarm is the same after artificial as natural swarming. Its prevention consists in cutting out all queen cells save one. This should be finely formed, and may be known to be approaching ripeness by the nibbling of the end by the workers, by which the wax sealing is removed. In skeps it is not possible to perform this operation with any certainty.]

#### COMBS BETWEEN FRAME AND HIVE—EVIDENCE OF QUEEN—EXTRACTOR AND HEATHER HONEY.

If you can advise me I should feel very thankful. My bar-frame hive is not in very good working order, as the bees have built down between the frames and hive box. What is the reason of this? One of my skeps, I fear, has no queen, but should like to be satisfied on this point. The workers do take in pollen, but very sparingly. I turned up the hive a day or two ago; it appears to be full of bees and moderately heavy. Do you think there may be a queen cramped for room owing to there being no breeding space? if so, what should I do? I bought an Italian queen, which did not reach me till too late for insertion. I kept her nearly three months, but workers sent with her appeared to be slaughtered by a large grub which I found in the small box in which they

\* This does not always apply to flat-bottomed foundation, for they sometimes build drone cells upon worker stamped sheet.

came. The queen was the last bee left, when she also disappeared. Why is it not possible to extract heath honey from bar-frames by means of the extractor? Is the extractor of use at all times with other honey in newly made combs?—A. CABBON.

[The frames must be too small. Their sides should reach the hive wall within three-eighth inch base. In this space no comb will be built. By inverting your skep you can at once see whether you have sealed brood, the brown rounded caps of which cannot escape attention. Finding this, you would know that your hive, even if without a queen now, possessed one less than three weeks since. By a little device you may, even with your skep, search successfully for eggs and grubs. Take a piece of thin looking-glass about half an inch square and fix this at an angle of 45° at the end of a stick or wire, leaving the face of the looking-glass unobstructed. Now, placing the skep so that the light shines down between the combs, draw the latter apart with the fingers and insert the looking-glass. It will reflect light into the cells and show in itself the condition of them most clearly. Eggs and larvæ in all stages may in this simple way be clearly seen. As your skep is strong we should recommend you to super it at once, when, if the queen be crowded-out of the brood nest by honey, the bees will soon make room for her by carrying the excess aloft. Excess of pollen is sometimes a cause of mischief, when transferring to a frame hive would be the better course.

The supposition that the bees with your imported queen were "slaughtered" by the big grub the box contained is incorrect. These grubs feed on comb, and possibly at times profit by the juices of the bee larvæ they meet in their path, but the adult bee is not injured by them.

Heath honey, but heather honey only, appears to contain a gelatinous substance allied to, if not actually identical with, the pectin of fruits. The consistency of Damson, Plum, and Currant jelly is due to substances, members of what are known to chemists as the pectose series, amongst which pectin appears. The question is one of great complexity, and at present analysts are not able to give any very exact particulars in reference to it. This gelatinous substance, however, so toughens the honey in which it is present that the extractor is usually unable to throw it out. New combs are too tender and delicate to admit of the handling and whirling which extraction involves. Those which have been hardened by the addition of many sets of pupæ cases will, however, pass through the ordeal with but very trifling injury. This the bees at once repair, so that the number of times which a comb may pass through the extractor is practically unlimited.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*]

#### TRADE CATALOGUES RECEIVED.

E. S. Miller, Wading River, New York, U.S.A.—*Catalogue of North American Perennials and Lilies.*

E. G. Henderson & Son, Maida Vale, London, W.—*Catalogue of Bedding Plants.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Seedling Auricula** (*F. W. Sanders*).—It is a very good border flower, and we have not a doubt it will have a fine effect in beds, especially if it is grown in masses. We shall be particularly obliged if you can inform us of its parentage, and when the variety first flowered.

**Summer-pinching Plum Trees** (*A Stranger*).—We do not quite understand the condition of your trees, as in one sentence you state, "the spurs are a foot from the wall," and in another you say, "they have been closely pruned in." You, however, will not err by entirely removing the foreright growths and others that are badly placed, and stop the remainder at about four leaves, commencing with the strongest shoots. Plums, however, generally produce a number of short-jointed stubby growths; these are the most fruitful, and many of them require little or no stopping. As a rule it is advisable, when the trees have covered their allotted space, to remove the most luxuriant growths for these are



long-jointed and do not readily form fruit buds at the base, the more moderate growths being far more fruitful in character.

**Raising Border Plants from Seed** (*Subscriber*).—*Anchusa italica*, *Delphiniums*, *Foxgloves*, *Honesty*, *French Honeysuckles*, *Foxgloves*, *Canterbury Bells*, *Sweet Williams*, *Seabious*, *Wallflowers*, *Valerian*, *Hollyhocks*, *Phloxes*, *Antirrhinums*, and *Potentillas* will answer your purpose, and are readily raised from seed sown now in drills in the open garden. The soil should be fertile, and if the weather is dry the drills must be well watered before the seed is sown. It will be well if the drills are drawn sufficiently deep that in covering the seed lightly they are not filled to the original level, as water cannot well be given to the rows afterwards. "Select" rock plants are not raised from seed; yet such plants as *Aubrietias*, *Arabises*, *Calandrinia umbellata*, *Saponaria ocymoides*, *Alyssum saxatile*, *Campanula carpatia*, *Alpine Auriculas*, *Violas*, and *Primroses* may be readily obtained from seed, and the plants are suitable for mounds and rockeries.

**Show Pansies for Exhibition** (*L. I. K.*).—Show Pansies are divided into three sections—yellow grounds, white grounds, and selfs, which terms are self-explanatory. We name six good varieties in each section:—*Yellow Grounds*,—*Alexander Brodie*, *Captain Clutie*, *Robert Burns*, *Senator*, *Corsair*, and *Daniel Robertson*. *White Grounds*—*Mrs. Hampton*, *Miss Todd*, *Jane Grieve*, *Bessie Wyatt*, *Mrs. Henderson*, and *Minnie*. *Selfs*—*Erebus*, *George Rudd*, *Dux*, *G. L. Brown*, *Helen Douglas*, and *Beacon*. Show Pansies are distinguished by symmetry of form, substance of petal, and clear, firm, and well-defined colours; fancy Pansies by their larger and less circular flowers and gorgeous colours. If you visit a show where both classes are represented you will see at a glance the difference that exists, and will never forget it. About the end of August or early in September is a good time for propagating Pansies. At that time fresh, short, non-flowering growths spring from the base of the plants, and if these are inserted in moist yet gritty soil under handlights on a cool shaded border they will speedily root, and make finer plants and give larger flowers than when propagation is effected earlier from strong flowering growths. Rooted offsets can usually be severed from the plants in September, and if planted deeply in good soil they form good plants by the following spring. Cuttings with hollow stems never make good plants nor produce fine flowers.

**Oyster Shells as Manure** (*B. Davy*).—Oyster shells, and all other shells ground to powder are useful manures, for they contain the same ingredients as bones, only in different proportions, the carbonate of lime or chalk predominating. We have seen them used with great benefit and in large quantities mixed with a heavy garden soil. The owner, after the ground was dug or forked, spread the powdered shells an inch or two thick along the lines where the crop was to be inserted, forked the powder in, and then sowed or planted the crop. The shells crushed fine are also useful for employing with soil for potting.

**Mulching** (*S. Travers*).—The placing of a covering of manure on the surface of the soil during dry weather is a most valuable practice. The ground should be well watered before the covering is applied. If manure cannot be had, fern or litter of any kind, or short grass from lawns, may be placed between the rows of vegetables where the soil is light and shallow. Cocoa-nut fibre refuse is valuable for placing on flower beds, as it is neat in appearance and very efficient in preventing evaporation. A layer quite 2 inches thick should be spread on the beds. Surface dressings of manure may be 3 inches in thickness, and light littery material 4 or 5 inches. We have found excellent results by systematically spreading the grass from lawns in the Celery trenches, as the covering kept the ground moist and lessened the necessity for watering the plants.

**Tuberous Begonias** (*Amateur*).—As you procured the seed from a "good firm" we presume it was also good, and its failure to germinate must be attributed to some fault of your own. But are you sure it has not germinated? We once examined some seed pots that had been covered with moss by an amateur who complained that he had been supplied with bad seed, but we found unmistakable evidence that the seed had germinated, and that the growth had been destroyed by the thick covering of moss which was left too long unmoved. You, however, do not complain of the seed, nor do we assert that it has germinated, though it ought to have done in the temperature in which the pot was placed if the soil has been "always kept moist." A sunny window would be one of the worst of positions for raising plants from such small seed; a shaded position would be much better, but we think you have small chance of success of the seed growing that was sown early in March. Tuberous Begonias usually succeed best when shaded from the mid-day sun; the plants require watering carefully yet sufficiently in their young state, but when the pots are filled with roots copious supplies are indispensable.

**Watson's Lawn Sand** (*E. L. B.*).—We have seen it used effectively on lawns, destroying the Daisies without killing the grass; we have also seen other instances where it was not so effectual. The cause of the different results we have no means of knowing; possibly the state of the weather when the dressings were given had an influence on the matter. The instructions that are issued with the sand state that it should be applied in calm dry weather, as rain washes out its strength. On ordinary soils  $3\frac{1}{2}$  ozs. per square yard is the quantity recommended for dredging on lawns, and on porous soils 4 or 5 ozs.

**Pears and Plums for Growing under Glass** (*W. B. Wall*).—Both Pears and Plums do well as double cordons; but if you train them as you propose up the roof at 1 foot apart sufficient light would not be admitted after a few years to allow of trees being grown on the back wall, although they would afford good results for some time. We should prefer to have the trees trained to trellises across the house so that their ends face the sun at noon, for we presume your house has a south aspect, commencing 4 feet from the walls back and end, and preserving that distance between each trellis. This would allow of the back and end wall being available, and give space for four trees to each trellis, and two rows of horizontal cordons in front where the roof is low. The cross trellises should reach from the ground to the roof. Pears most likely to succeed are Clapp's Favourite, Williams' Bon Chrétien, Souvenir du Congrès, Beurré de l'Assomption, Louise Bonne de Jersey, Comte de Lamy, Beurré Superfin, Baronne de Mello, Doyenné du Comice, Durendeu, Marie Louise d'Uccle, Passe Colmar, Beurré Diel, and Van Mons Léon Leclerc. Of Plums—Joly Green Gage, De Montfort, Jefferson's, Kirke's, Green Gage, and Coe's Golden Drop. The foliage of Jefferson Plum has not in our case the smell of Sweet Briar.

**Annuals and Perennials for Spring** (*B. L., Leeds*).—Of perennials that you may raise from seed there are *Alyssum saxatile compactum*, *Arabis alpina*, *Aubrietia green*, *A. purpurea*, *Bellis perennis* (Daisy) vars., *Campanula carpatia* and its white variety, *Wallflowers* in variety, *Iberis sempervirens*, *Myosotis sylvatica*, and *Pansies*; and of annuals, without giving an extended list, there are *Silene pendula* and its white variety, *Linnanthus Douglasii*, *Collinsia bicolor*, *C. verna*, *Saponaria calabrica* and its white variety, and *Nemophila*

insignis. The perennials should be sown from now to July, the earlier the better, pricking them off when large enough to handle in good rich light soil in an open situation, shading and keeping moist until established, then expose fully, planting-out in October where they are to flower. The annuals should be sown in an open situation late in August or early in September, and transplanted to the beds or borders in October, or about six weeks after sowing.

**Fruiting Young Vines** (*Excelsior*).—Your desire to excel is commendable, but it is well to make sure the road is safe before "going ahead of the slow coaches," as you say you intend doing. In our own practice, and as observed in that of many others, we have seen fine well-ripened wood made the first season, and from that we have taken, and seen others take, a good crop the second season after planting, but we never did so without regretting it afterwards. Fruiting a young planted-out Vine heavily has much the same effect upon it as fruiting heavily a young Vine in a pot. The first heavy crop from a young Vine paralyses it for future effort. It is the best and the most profitable in the long run to take from a Vine but little the second season after planting. The more roots the Vines make before bearing, the better will the Vines stand bearing fruit.

**Lifting Vines** (*J. A., Dublin*).—The lateness of the Grapes this year is doubtless the result of the long period of cold weather that has prevailed, and a large number of cultivators are in this respect in a similar position to yourself. Your proposed mode of draining the border is good, as also is your plan of lifting the roots in the outside border this year, and those in the inside next year. Provided the work is done with great care, having the soil ready so that replanting can be done quickly, the roots being kept moist and the foliage syringed and shaded to prevent flagging, the best time for lifting would be soon after the crop is cut, and fresh active roots would then be produced the same season; but it is of great importance that the roots are not dried during the process of lifting, and that the foliage is kept fresh. If you adopt this plan you must commence at one end, take out a portion of the old border, place in the new soil, and finish each Vine as the roots are raised, not dig the whole of the border out at once. This plan is perfectly practicable, and you ought to have no difficulty in doing the work, as the inside roots will be of great advantage in affording support to the Vines during the progress of the work outside. We are quite unable to advise you on the question of building a wall round the border, as your description of the soil "not very good" is far too vague to enable us to judge of the necessity or advisability of confining the roots in the manner indicated. It is necessary to have more precise information as to the nature and depth of the soil and the character of the subsoil in considering a question of that kind; it would have been an advantage, too, for the purpose of our reply to have known the width of the outside border. We may, perhaps, usefully remind you that the lime and brick rubble will not prevent the roots passing through into the subsoil, and that the drain must be below the bottom of the drainage, not merely below the top of it; and we may also remark that a wall, if the bricks are not laid in cement or very strong lime mortar, will not confine the roots, as they will pass through joints made of common mortar, and they will also pass under the wall if the bottom of the border is not concreted. If you think it desirable to send us further particulars, and ask any questions that this reply may suggest, your letter shall have careful attention.

**Figs Dropping** (*J. S. S.*).—Had you stated the size of the trees and the number of fruits on each, as well as the dimensions of the tubs, we should have been better able to have judged whether you are correct in your surmise that the cause of the evil is "want of root room." In all probability this is so, as the soil you have employed and the general treatment to which the trees have been subjected are correct. If you stop the young shoots, or such of them as have a tendency to become luxuriant, and surface-dress the soil with rich manure 3 inches in thickness, fresh roots will speedily form and gather the support that the trees need for maturing the crops. If your trees are at all large liquid manure once a week is not sufficient, and it should be supplemented with manurial mulchings. A few pieces of slates inserted round the sides of the tubs will afford space for the top-dressing, and for preventing the water that is applied passing over the tops of the tubs.

**Roses in Pots Failing** (*J. B.*).—It is no "trouble" to us to answer questions, but, on the contrary, a pleasure, when we can answer them usefully. You can scarcely expect to rival Mr. Taylor in growing Tea Roses in pots, as you lack the conveniences that are at his disposal, and your experience as a cultivator differs somewhat from his. But we may inform you that the gardener mentioned would not succeed so well as he does if he had to commence with plants similar to those you describe: yet he would not have failed so completely as you appear to have done. In the first place, he would not necessarily have repotted the plants as soon as he received them, and it is certain he would not have watered them with liquid manure as you have done before the roots were in an active state and had filled the pots. Nowhere in this Journal has the practice been recommended that you appear to have adopted. As a rule, the practice of repotting plants as soon as they have arrived from the nursery is not sound, and it is certainly prejudicial to plants to apply liquid manure almost immediately after potting, when the soil, as in your case, was quite rich enough for the requirements of the plants for many weeks. We fear you have first taken care to procure suitable soil for your Roses and then spoiled it with liquid manure. We advise you to visit a nursery in early October where dwarf Tea Roses are grown, select a dozen plants and pot them in 7, 8, or 9-inch pots according to the size of the plants, and if these are kept healthy and clean, and not started into growth too early, they will afford you more blooms than fifty such plants as those you have described. Plants grown to a flowering size in pots by a nurseryman who devotes special attention to Tea Roses would be better, but necessarily more costly, than plants grown in the open ground. Growing Tea Roses from a small to a large state in pots can scarcely be well done by amateurs with only one greenhouse at their disposal, and this in all probability not suited for the purpose. Had you wintered your plants in a frame and retarded their growth, then planted them in the open ground in March, you would in all probability have succeeded much better than by retaining them in pots and potting and starting them so early in the season, which was too early considering the means at your disposal—that is, if we understand the nature of your house aright; but on this point you do not supply any information.

**Insects on Melons** (*Duke Melon*).—Plants in such a state as yours are can only be cleansed by sponging every leaf with nicotine soap or some other insecticide, then syringing thoroughly, and dusting with tobacco powder. Questions arriving on Wednesday morning can only be replied to very briefly, or the answers deferred until another issue.

**Names of Plants** (*J. C.*).—No. 1, *Cupressus torulosa*; 2, *C. sempervirens*; 3, *Thuja Lobbi*; 4, *Cupressus Lawsoniana*; 5, *Biota orientalis aurea*; 6, *Taxodium sempervirens*; 7, *Retinospora plumosa aurea*; 8, *Cupressus Lawsoniana erecta viridis*; 9, *Abies Nordmanniana* (*G. O. S.*).—A spike and a better example of the foliage of the bulbous plant would have enabled us to have



given the name definitely; we can only now suggest that it is *Ornithogalum exscapum*. It is quite impossible to name the Saxifrage without flowers, as many species are so nearly identical in foliage that no one can name them from leaves alone. (*W.C., North Devon*).—Small imperfect leaves of Ivies are quite insufficient for identification; sprays containing perfectly developed leaves are necessary. (*R. L. D.*).—The flower appears to be a white variety of *Hyacinthus amethystinus*, and is very pretty. (*J. P.*).—1, *Lonicera tatarica*; 2, *Staphylea pinnata*.

**Swarming** (*F. J., Cork*).—The course you desire is the one we had planned. Swarming will be treated somewhat fully in an early issue.

**Moths in Hives** (*T. E. L., Needham Market*).—When bees during summer become weak from any cause, the combs they are unable to cover are likely to get infested with the grubs of some species of *Galleriæ*, the products of the eggs laid by the moth which by stealthy watching gains admittance. These grubs channel their way through the comb, and sometimes so carve and weaken it as to cause it to drop. But your bees in bringing out the moth larvae show that they are gaining strength, for ejecting the pests is an indication that they are repairing their combs. The preventive of all this is keeping your stocks strong, when the mother moth would have no chance. The moths whilst striving to gain an entrance have an advantage in that they as night-flying insects see clearly in the gloom, but in strong stocks the mother once within has but a poor chance of escape, while even if eggs are laid by her they are certainly removed before mischief has really commenced. Watching for the moths as you suggest would be quite useless, but they may often be seen flitting about if a lantern be taken after dark amongst the bees. Swarms having on more comb than they are able to cover are in no danger whatever. The precaution of killing all larvae and chrysalids will of course be taken.

#### COVENT GARDEN MARKET.—MAY 25.

No alteration in prices. A brisk trade doing, with large supplies of fruit from the continent.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons.....	each	7 0 to 10 0
Apricots.....	box	1 6 2 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	½ lb.	1 6 2 0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches.....	dozen	12 0 20 0
Figs.....	dozen	10 0 12 6	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	Pears, dessert ..	dozen	0 0 0 0
Cobs.....	½ lb.	0 0 0 0	Pine Apples.....	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	0 0 0 0	Strawberries ..	per lb.	3 0 8 0
Grapes.....	½ lb.	4 0 8 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto.....	½ 100	0 0 0 0

#### VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4 0	Mushrooms.....	punnet	1	0 to 1 6
Asparagus.....	bundle	2	0 5 0	Mustard & Cress ..	punnet	0	2 0 3
Beans, Kidney....	½ 100	1	0 1 6	Onions.....	bushel	2	6 5 0
Beet, Red.....	dozen	1	0 2 0	pickling.....	quart	0	0 0 0
Broccoli.....	bundle	0	9 1 6	Parsley..... doz. bunches	6	0	0 0
Brussels Sprouts..	½ sieve	0	0 0 0	Parsnips.....	dozen	1	0 2 0
Cabbage.....	dozen	0	6 1 0	Peas.....	quart	0	0 0 0
Carrots.....	bunch	0	4 0 6	Potatoes.....	bushel	3	9 4 0
Capsicums.....	½ 100	1	6 2 0	Kidney.....	bushel	4	0 4 6
Cauliflowers.....	dozen	0	0 3 6	Radishes..... doz. bunches	1	6 2 0	
Celery.....	bundle	1	6 2 0	Rhubarb.....	bundle	0	4 0 6
Coleworts..... doz. bunches	2	0 4 0	Salsify.....	bundle	1	0 0 0	
Cucumbers.....	each	0	4 0 8	Scorzonera.....	bundle	1	6 0 0
Endive.....	dozen	1	0 2 0	Seakale.....	basket	3	0 3 8
Fennel.....	bunch	0	3 0 0	Shallots.....	½ lb.	0	3 0 0
Garlic.....	½ lb.	0	6 0 0	Spinach.....	bushel	3	0 0 0
Herbs.....	bunch	0	2 0 0	Turnips.....	bunch	0	4 0 0
Leeks.....	bunch	0	3 0 4	Vegetable Marrows	each	0	0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE CROSS-BREEDING OF CATTLE.

THIS subject is of far more importance than is usually considered, and is well worthy of the attention of practical men as well as of physiologists. Experience in the matter, however, exhibits so many contradictions and unlooked-for results that attempts to lay down any sure guide have for the most part in general been received with considerable distrust by farmers, and more especially by young men, or the home farmer who may be just starting in his occupation; for no sooner does the inquirer imagine that he has discovered some particular principle which obtains generally, than he is met by circumstances which apparently upset his previous conclusions. This must be considered as very discouraging, especially to men of limited experience. For instance, the maxim that "like begets like" is a rule having extensive sway, yet as propagation is the work of two parents the respective influence of the one or the other is a matter involv-

ing considerable diversity of opinion as well as actual results; it therefore prevents anything like certain conclusions being arrived at. We cannot perhaps do better at the outset of our subject than consider the respective influence of each parent, at least the opinions held thereon by some of our most practical as well as scientific men, for on this the merits of pure or cross-breeding must principally depend.

The most probable and generally received opinion is that propagation is done as it were by halves, and thus it is considered that the back, loins, hind quarters, general shape, skin, and size follow one parent, and the forequarters, head, vital and nervous system the other; and we may venture to add that the former in the great majority of cases go with the male parent, and the latter with the female. There is, however, a minority of cases in which the opposite result obtains; still there is no great difficulty in showing one most important point—that size is governed more by the male parent, a matter which we must ask the home farmer to remember in considering the various proposals we shall lay before him in our future observations on crossing and the various objects to be obtained thereby. We have dwelt on this point rather strongly, because upon it rests the difficulty of effecting required improvements in breeding by means of crossing, and the still greater difficulty of establishing a new breed by such means. So formidable is this difficulty that breeders, in many instances finding their efforts at such improvements so often baffled, or observing this to be the case in the practice of others, cling with great tenacity to the doctrine of purity of blood, believing it to be the surest way in which to proceed with safety. Now, pure breeding when carried to an excess is styled in-and-in breeding, which has its advantages as well as disadvantages. Its friends and supporters say with great truth that when we have in breeding reached great excellence it is unreasonable to risk the loss of it by crossing, and the more so as the defects of a parent may disappear in a first or second, and reappear in the third or fourth generation, by "breeding back" as it is commonly termed. Again, it is urged, and with some force, that great excellencies can only be perpetuated by union with similar excellencies, and that beyond all this there is a certain amount of advantage from an unstained lineage, from the very possession of breed, as it is designated. The objectors, however, to in-and-in breeding declare that by so doing we engender weakness of constitution, diminution of size, hereditary diseases, and a tendency to barrenness; but it is again urged in reply to such objections that they occur from want of care and caution in weeding out defective animals in respect of both constitution and size. We have also to consider the ultimate objects of cross-breeders, for they vary much. Some require to improve their animals, keeping in view chiefly the value of the animals for dairy purposes; others desire to obtain an additional excellence in the animals they breed for fattening, and also to rear animals complete enough in all requisites for exhibition stock.

We must, therefore, now consider what qualities are required in the ox; these we may presume are early and rapid growth, the development of flesh or muscle on the parts most prized for human food, and also a disposition to lay on fat. These, with the possession of the smallest amount of bone consistent with strength and health, are the principal characteristics of a well-bred animal capable of being reared upon the esteemed point of early maturity and weight for age. Again, instead of the highly nervous temperament of the buffalo and other wild cattle, we have here a quiet lazy disposition; in fact, a lymphatic temperament, by the influence of which the digestive organs reign supreme, and convert for the profit of the breeder and feeder a given quantity of food into the utmost amount of flesh and fat.

We have no doubt, after falling back upon our own experience

as well as that of many eminent cattle breeders, that examples in pure breeding in cattle are more frequently met with, and of greater perfection, than in sheep. For instance, the Devon and Hereford cattle have descended through many generations in unbroken lines, and owe in a great measure the perfection which they have attained to careful selection by men of great eminence in cattle-breeding, who have given much attention, and in some cases made it the unceasing object and pleasure of their lives, to rear, improve, and possess them in all their native purity. The Shorthorns—although considerably of more modern origin, and brought into their present form by a series of successful crosses—have yet been preserved pure with even more care than the other breeds we have mentioned. The magnificent frame and great feeding properties of the Hereford, the quality of beef and richness of cream as well as working capacity of the Devons, are well known and generally appreciated; and with all these qualities they are quite unable to resist successfully the encroachments of the Shorthorns, whose early maturity and property of laying on both flesh and fat, accompanied by deep milking capacities, are so much esteemed that they outnumber both the other breeds combined. As, however, it is found in practice that the leading purpose for which a breed of cattle is kept is generally well defined, or ought to be, whether for the purpose of the dairy or for feeding and fattening upon the lines of early maturity, or for working purposes, and as each of these purposes can be well attained by keeping a pure breed, and maintained by judicious selection, there is certainly not the same temptation or inducement to enter upon a course of crossing, which is often experienced and prevails in sheep-farming, in order to insure specific advantages which cannot otherwise be obtained.

Before entering upon a series of illustrations of successful crossing of cattle for different objects we must observe that there is a direct pecuniary advantage in judiciously cross-breeding, and that increased size, a disposition to fatten, and early maturity are thereby induced. Whilst this may be the result for the most part by the very fact of crossing, yet it is principally due to the superior influence of the male over the size and external appearance of the offspring, so that it is desirable for the purpose of the butcher that the male should be of a larger frame than the female, and should excel in those peculiarities we are desirous of reproducing. We must, however, repeat it as an exceptional truth, that though as a rule the male parent influences mostly the size and external form, and the female parent the constitution, general health, and vital powers, including the milking capacity, yet the opposite result will occasionally occur.

Having been for many years engaged in the breeding of cattle of various descriptions for various purposes, as well as in the purchase of a large number for fattening purposes, we trust that some of our observations and remarks may be of use to some of those engaged in cattle breeding and feeding, and our experience has led us to observe both what will pay the breeder and be most sought for by the purchaser who intends to fatten. We have generally found that a preference has been given to animals which are cross-bred, and it is our intention to illustrate this by practical results.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—We are still employing the horses on the fallows for roots, pushing forward the work on the land intended for Swedes. These have been drilled for some few days in the northern and north-midland districts; yet it is customary in the southern and south-eastern counties to defer the sowing of Swedish Turnips until the first week in June, from the 8th to the 12th of that month being considered about the best time, except in case of roots required for early cattle feeding, in which case we find it a good plan to grow them in admixture with the Mangold crop, so that they may each be raised and stored away at the same time, or the Swedes used for feeding the cattle in the boxes or dairy cows in the stalls in case of a milk-selling dairy, and by growing them amongst the Mangold crop they become ripe and fit for use at the earliest period. In growing the Swedes by themselves for the main crop, if the land is likely to require much interculture in consequence of couch or weeds, we drill them at 2 feet apart on the flat, but on the stretch or ridge at 27 inches. In the event, however, of the land being clean, and there being only the ordinary infant weeds to be destroyed, we drill them at 22 inches between the rows. This has been found the best distance for yielding a full crop, for we have known it tested by the competition for prizes in a farmers' club for many years. After the catch crops, such as Rye, Trifolium, &c., are cleared off, whether by sheep-feeding or mowing for use as green fodder, the sooner the land, if intended for Turnips, Rape, or Kale, is ploughed and sown the better; but to be the more sure of a good seed bed the quicker the land is worked after ploughing the better the results will be—in fact, the work should if possible be done simultaneously, so that all the land ploughed each day should be reduced to a fine surface and seeded before the day's

work is finished. This plan will not only insure the retention of moisture in dry weather, but also will place the land in the best state to receive rain. At the time of ploughing after green crops removed, when it is done as fast as the crop is cleared, the land will always work more freely than when allowed to remain and become sun-baked. Strictly speaking, in the majority of seasons the root crops grown after green crops depend entirely for their successful growth upon the manner of tilling and sowing, as above stated.

*Hand Labour* will now be required in various ways, for the mowing season is near, and everything in connection with the haying period—such as implements and machinery—should be looked out and prepared for work after being thoroughly examined and repaired if necessary, in order that nothing may interfere with the work at the busy period. Cutting the grass early is of great importance as to the feeding value of hay, although it depends of course upon the making as well as the weather during the hay harvest. The advantages of cutting grass for hay whilst young and growing are very great, particularly hay for feeding sheep and lambs. We hold that by early cutting 1 cwt. of hay often contains as much nutritious matter as 1½ cwt. of hay when the grass remains to become old before mowing. This is a matter of great importance, because, as small animals can only eat a limited quantity, it should contain the greatest possible amount of nutrition. As showing that the system of making hay is of much consequence we will refer to an instance which we find in our memorandum book relating to the hay season of 1862. Our earliest crop of Trefoil, Clover, and Italian Ryegrass in that year was cut for hay on the 19th of May, and carted to the rick in first-rate condition on the 26th. Although the weather was difficult the first few days it proved fine from the 24th to the 26th; we were therefore enabled to get up the hay within six days after cutting. This could not have been done except by tedding and constant moving, as rain came on the 27th; and herein lies the advantage of the hay-making machine. Many farmers used to object to their use in the making of field hay, saying that too much of the Clover leaf was lost by the process, and it was considered best to allow the hay to remain in swathe, being turned over occasionally until dry and fit for stacking. This, however, is bad policy in our changeable climate, because it takes several days longer in making and adds greatly to the risk of damage by rain. We therefore advocate that the plan of making pasture hay should be applied to that of field hay also; for although hand labour sufficient could not be obtained, yet by the aid of tedding machines and horse rakes any amount of work can be done in a short time. We consider the hay is better made, with less risk of weather, with less loss of the Clover leaf; for being constantly moved it dries more regularly, the leaf not becoming so brittle and crisp as when allowed to remain in swathe and long exposure to the sun.

*Live Stock.*—Fodder crops have been very deficient this year, and this, together with the late growth of the field grasses, has caused and will continue to make green food scarce for both sheep and cattle. Much more cake and other feeding stuffs will therefore be required; but we must caution the home farmer in the management of stock, as we do not consider the manure arising from cake-feeding to be so valuable in the summer as when fed in winter months. Hedge and border grass should be continued for feeding young stock in the boxes, or dairy cows in the stalls if their produce is sold as milk, or in case of suckling calves for veal. In those cases where the Mangold crop is exhausted we cut up Clover or Italian Ryegrass for horses and also for cattle in the boxes. If the first cutting should be rather light there is some advantage by the second being likely to prove better, and the fodder supply being more regularly kept up. The breeding sows in the yards never do better than when fed on green fodder with a little Maize or Peas given in the troughs twice daily.

#### VARIETIES.

*BRITISH BEE-KEEPERS' ASSOCIATION.*—The Association will hold their seventh great Exhibition of bees and their produce, hives, and bee furniture, and honey fair, at the Royal Horticultural Society's Gardens, South Kensington, in connection with the Society's Flower Show, on Tuesday, Wednesday, Thursday, Friday, Saturday, July 26th, 27th, 28th, 29th, 30th, and Monday, August 1st, 1881, when prizes will be offered for stocks of Ligurian, Cyprian, or any other foreign bees; for hives and supers of various kinds, honey, and comb foundation. Classes are provided for cottagers, and foreign and colonial exhibitors. A counter will be appropriated to the exhibition and sale of honey in the comb and in glass jars, beeswax, and small apiarian appliances, and in this department goods may be purchased and delivered at all times during the Show. There will also be a driving competition, the prizes being awarded to the competitors who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, capture and exhibit the queen. The system of open driving will be adopted; the receiving hive to be inclined at such an angle as shall permit the passage of the bees to be viewed by the spectators. Exhibitors must remit

the entrance fees with their entry forms properly filled up, in time to reach the Assistant Secretary (Mr. J. Huckle, King's Langley) on or before Saturday, July 16th.

— **BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.**—The visit of the Bath and West of England Society and Southern Counties Association to Tunbridge Wells in the first week in June will be the fourth which the Society has made to the south-east of England. In the department of live stock the entries amount in the aggregate to 767, a number which is, with two exceptions, the largest ever reached by the Society. As might have been expected, the classes for Sussex cattle and Southdown and Kent sheep will form the great feature of the Show, while the collection of Jerseys will be one which both for extent and quality has been seldom surpassed. In the poultry department the "single-bird system" has been strictly reverted to. The total number of entries is 519, and includes specimens from nearly all the leading exhibitors, some of whom, however, have been prevented by the concurrence of one or two other large shows in the same week from entering so largely as usual. A novel and interesting department has been added this year to the Exhibition. A working dairy for the purpose of exhibiting the recent improvements in the treatment of milk and cream for the manufacture of butter, the process of butter-making, its curing and packing for transit, and the treatment of milk for travelling, will be in constant operation, and arrangements have been made to erect a stand, commanding a full view, for the convenience of those who wish to study the processes. Another new feature of the Show will be an exhibition of bees and bee appliances in a tent designed for the purpose, and the delivery of lectures at frequent intervals, with practical illustrations of the most approved methods of bee management and manipulation. The horticultural department will also maintain its attractiveness, and will include many choice specimens from the gardens and greenhouses of floriculturists of Kent and Sussex. Silver cups are provided for Orchids, and are expected to incite good competition.

— **THE ROYAL AGRICULTURAL SOCIETY.**—A general meeting of members was held last Monday at the Society's rooms in Hanover Square, Mr. W. Wells, President, occupying the chair. Mr. H. M. Jenkins, the Secretary, read the report of the Council, which showed a total membership of 7979, being a decrease of 103 since December. On the motion of the Earl of Feversham, seconded by Lord Rendlesham, Mr. John Dent of Ribston Hall, Wetherby, was elected President for the ensuing year.

— **THE BIRMINGHAM DAIRY SHOW.**—The entries in all departments closed on Saturday last, and it will be seen from the following returns that there will be a very large and interesting Exhibition—Cattle, 122; Goats, 22; cheese, butter, and cream, 352; bees, hives, and honey, 20; poultry and eggs, 615; collections of dairy and poultry appliances, 57; wool and other farm produce, 13. The poultry will be such as is considered best adapted for the farmyard. The supply of home-grown poultry and eggs for sale is by no means equal to our requirements or capabilities of production, and it is thought much good may be done if farmers' wives and daughters can be induced to devote more attention to the subject, which would be to their own advantage and to that of the populations of our towns by increasing the supply of eggs and poultry. Arrangements are in progress for the delivery, on some of the Show days, of short popular lectures on butter and cheese-making, poultry-keeping, &c., which it is hoped will be of much practical value.

— **SALE OF SHORTHORNS.**—The bulk of Mr. D. McIntosh's famous herd of Shorthorns at Havering Park, Essex, were sold last Thursday. Five bulls realised 543 guineas, the highest price for one animal being 310 guineas. Thirty-four cows and heifers realised the substantial sum of 1503 guineas. Two animals were bought for the Queen, seven to go to Belgium, and one, at 100 guineas, to go to America.

— **THE ROT IN SHEEP.**—The reports of the Commissioners appointed by the Royal Agricultural Society of England to investigate the disease known as liver rot, which has entailed such serious losses upon the agricultural community, have just been issued. In

1879 it is estimated that in England and Wales three million of sheep died or were sacrificed from rot, and that equally great losses occurred in 1880, and still continue. With regard to preventive measures, the Commissioners advise several methods for the capture and destruction of the fluke ova. Foremost amongst preventives is the removal from the land of superfluous wet, and towards this end it is stated that draining and ditching in many districts are being prosecuted with unusual energy. The protective effect of penning sheep on dry land at night time is also recommended. Again, concentrated dry food given systematically limits in a very striking manner the disastrous effects of flukes. Further, the regular use of common salt is well entitled to rank as a preventive of rot.

## POULTRY AND PIGEONS

### THE HATCHING SEASON.

AT page 410 you say you will be glad to hear from your readers respecting this matter, and we beg to send you a few notes on the subject. Here and hereabouts hatching has been about on a par with last season, and it was not considered very good. The best of all our eggs to hatch have been the Scotch Greys, then Dorkings, Sultans, and Buff Cochins. The latter have been very bad. Indeed, although we set many dozens of eggs of the Cochins we are ashamed to tell our increase, but of the Greys we are proud. Nearly every egg of these hatched, and we never had a greater per cent. of the right-coloured ones amongst them. Did we speak of Scotch Greys alone we would have no hesitation in saying that our hatching season had been a most successful one, but including all kinds it has only been half so, as our chicks only number about half the quantity of eggs set.

In March the eggs were much more fertile than in April or the early part of May. According to many poultry authorities the reverse of this should happen, as warm days and short nights are considered more favourable for the production of fertile eggs than severe weather; but we are beginning to think that this is hardly true in all cases, as for several years our early eggs have been the best, and we hear from other extensive poultry rearers that they have experienced the same thing. Why this should be so there may be many opinions. The actual reason may be nearly the same throughout. Early in the season, when fanciers first commence to hatch, they are most anxious to secure fertile eggs and strong healthy chicks, and as they secure a few of these and the season advances they may get more careless in keeping up the condition of their breeding stock; the best food and other attentions being transferred from the parents to the progeny, and a sudden falling-off is the result. Again, damp weather is, according to our observation, far more favourable to the fertility of eggs and the production of chicks than drying winds, which we all know occur frequently, too frequently in April and May. A damp corner for hatching does not seem to serve the purpose so fully as a general humidity.

Further experience, then, is forcing us to think that March is the most fertile month of the year for hens' eggs. It would be of interest to know if others are inclined to think the same. Indeed this is an interesting point altogether, and if opinion generally could be ascertained as to it, much good might follow.

Some may object to March chicks owing to their being liable to suffer from the cold for a number of weeks afterwards, whereas nothing of the kind is experienced further on; but this does not by any means always hold good, and a little shelter during April winds lightens their ill effect wonderfully.

No one about here goes in for poultry-keeping wholesale, but many of the farmers and cottagers keep a good many birds. Nowhere have we heard of any great hatching taking place. Failures are spoken of enough, and altogether as to hens' eggs the season has been, as you say, a doleful one as a rule.

Geese are kept in large quantities about here, and goslings are, as some of your garden hands would say, "a grand crop." Ten, eleven, and twelve from a dozen eggs are quite the rule. Turkeys, too, are well spoken of, but Ducks are not at all satisfactory. We have not seen one good batch of them this season, although we know of plenty of eggs having been set. They, like the accompanying Green Peas, appear to have been affected by the east winds which have all along been very prevalent.

Mortality amongst our juvenile stock was never lighter than it has been this season. We have not lost a chick from disease, and



one only or two through being trodden under the feet of the mothers. Diarrhoea is one of the chief, if not the main, afflictions to be guarded against in rearing young chicks. So long as this can be warded off other ailments will do little harm, but if this once sets in nothing is more weakening, more likely to stunt their growth, or more certain to prove fatal. We are much inclined to think that most young beginners, labouring under an acute attack of chicken fever, injure their young pets by overfeeding or not studying the weather in connection with this. At one time we went to considerable expense in buying patent meals, meat to take the place of insects, and all kinds of medicines, which latter were straightway administered if an eye was seen to close at an unnatural hour, and the insect substitutes were supplied whether the chicks had natural access to these or not, but through time we have found out that much of such doctoring is not only valueless but injurious.

In changeable hot weather nothing appears to produce diarrhoea

so much as greaves or any other substance related to them. Now our chicks have never anything of the kind, and they are certainly no way inferior to what they used to be when we were supplying them with such stuff. Soft food is not given indiscriminately. In wet or cold days it is withheld altogether, and nothing but a mixture of small wheat and barley given, and this is much more effectual in regulating the system at such times than the usual quantities of sloppy food.

In warm dry weather a little of any kind of green food, such as thinnings of Onions, the outer leaves of Lettuce, or the common Wood Sorrel, may be chopped up small and mixed with their food; but this only applies to fine weather, and chiefly to chicks in confinement, as those running on grass can select green material for themselves. There is one kind of food which we generally add a dash of to the meal before mixing that we do not recollect ever seeing advised for chicks, and that is sugar. It is well

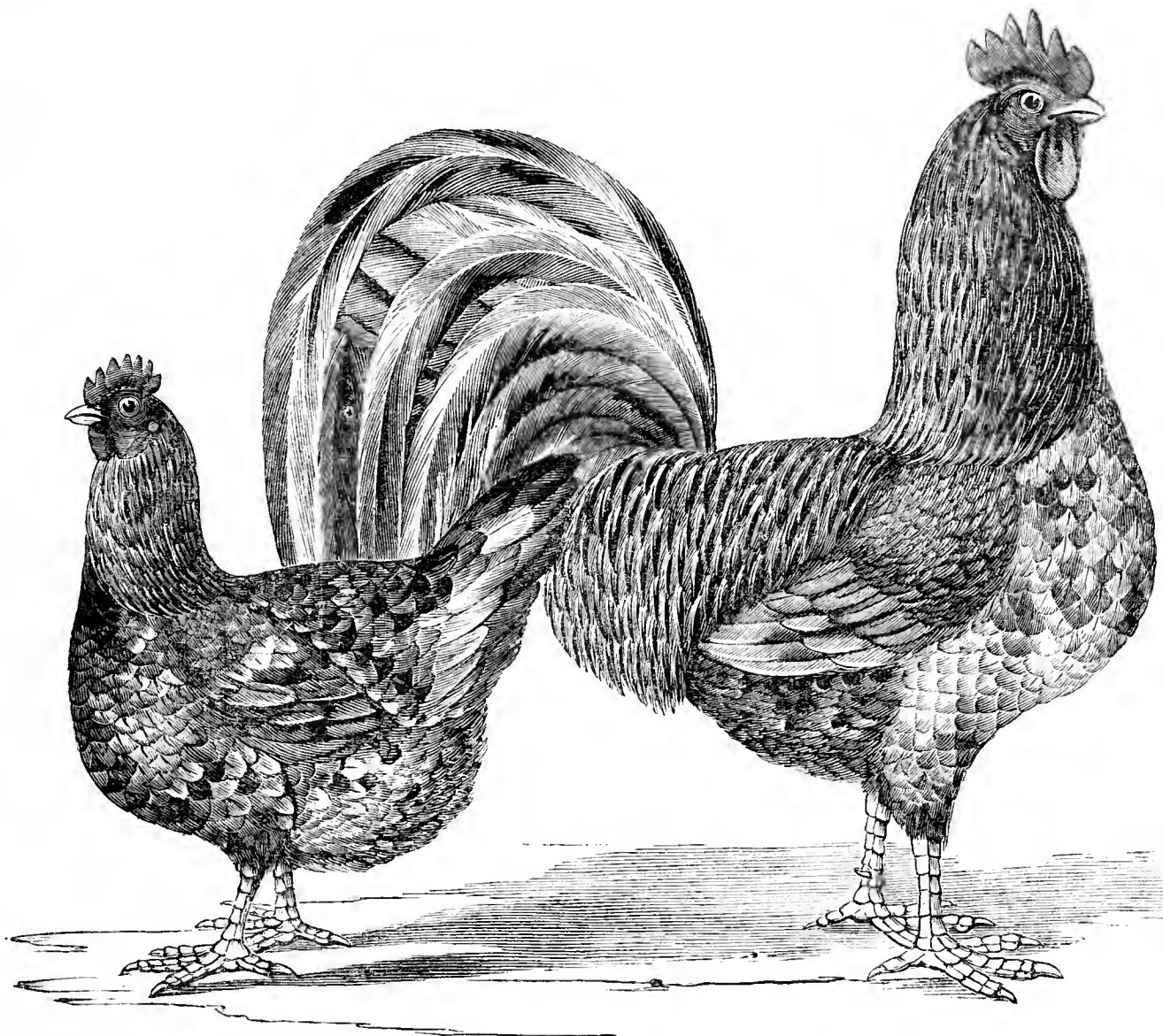


Fig. 96.—MOTTLED JAVA FOWL.

known this is a very nourishing substance, and the chicks seem to thrive on it amazingly. It is fattening if given largely, but in moderation it keeps them in very desirable condition.—J. MUIR.

#### THE JAVA FOWL.

PARADOXICAL as it may seem, the "Java Fowl" is not a Java fowl at all, but another product of American fanciers—an American breed. A few years ago Javas were comparatively unknown. To-day breeders on all sides are "going into Javas," and the boom has fairly started. Not since the advent of the Plymouth Rock has such an important addition been made to the list of standard breeds as when, this winter, Black and Mottled Javas were admitted. The standard for them has not yet been published, but a good bird is apparent to the eye of a fancier without the book that describes it. Although good work has been done in breeding Javas, much remains to be accomplished. They are the

very best of winter layers, a large fowl, with smooth shanks and yellow skin. As a rule the handsomer birds are those of medium size, and compactly built. These have a lustrous plumage in the black variety, fine full-plumed tail, and good symmetry. The large birds are more stilty, larger boned, and not so handsome. One of the first questions that Java fanciers will have to meet is that of size. It will be found that the small birds will breed a prettier specimen, but the points to gain are fine shape, clear lustrous black plumage, and good size for market. There is no sort of doubt that this can be done, and so many fanciers are now becoming interested in the breed that it is sure to improve at a rapid pace. The material is there for a popular fowl for all classes, fanciers and farmers alike, and it bids fair in a few years to contest the prize for a practical beautiful fowl with the Plymouth Rock. As to their real origin little is known. All we positively know is that they are here, and that will answer; excellence before pedigree always. This is, however, of the Black

variety only. We know who originated the Mottled Java, and how he did it. Mr. Lattin had added to his fame as a fancier of Black Javas the honour of originating the Mottled birds. He writes us as follows concerning their origin:—

"About nine years ago I had some white hens, known here at that time as White Brahmas, but without any feathers on their legs, which were smooth, and a bright orange colour; beaks yellow, combs single, size about the same as the Javas. To commence with, a pair of Mottled Black and White chicks were hatched from these hens' eggs. As I had no other cocks on the premises but Black Javas, these Mottled chicks must have been the result of a cross between a Black Java cock and the White hens. I kept the two Mottled chicks, and next year raised five more nicely Mottled ones; the rest were White, about the same number in each brood. The next year I bred the cock from the first pair to the last year's pullets, and succeeded in getting a fine lot of Mottled chicks, a few White ones, and fewer Black. From that time I worked faithfully to improve them in breeding true to colour; till I got them so a very small per cent. of White chicks appeared. It will, of course, take some time yet to breed them all uniformly alike, as no breed will do this, but they run very true and even, all things considered. The Mottles are not always evenly distributed, and for some time the legs would be black or willow, though some prefer them mottled yellow and black, but I now have no trouble in breeding legs yellow."

[We take the above account of the Java fowl, with the accompanying illustration, from our New York contemporary, the *Poultry Bulletin*. In thus acknowledging the source from which our information is derived we do not follow the course adopted by our contemporary, in whose pages we were somewhat surprised to find a reproduction under a slightly altered title, and without the least hint as to their origin, of several of our articles upon "Practical Scientific Breeding." The taking of extracts or even single articles by some of our American friends we are accustomed to, but we think this wholesale appropriation is not the common practice of journals of repute on either side of the Atlantic.—Ed.]

#### DOVERIDGE POULTRY SHOW.

*President*—Lord Waterpark; *Treasurer*—Rev. C. J. Hamilton; *Secretary*—Mr. S. J. Adams, Doveridge, Derby.

Uttoxeter, 28th April, 1881.

Sir,—At a meeting of the Committee for promoting the above named Poultry Show (to be held at Doveridge, near Uttoxeter, on Thursday, the 3rd November next), I was requested to send out circulars giving notice of this Exhibition, with the object of securing entries.

There will be forty-one classes, of which twenty-two will be for single birds hatched in 1881. There will be a class for birds (cock and hen, or cockerel and pullet) not exceeding two years of age, first cross between any two distinct varieties of pure-bred exhibition fowls, to be judged for quality for table purposes. Entrance fee, 2s. 6d. First prize, £2; second, £1; third, 10s.

Also a Selling Class for pens of one or more specimens, not exceeding three, of any variety of recognised exhibition poultry, pure bred, not exceeding two years old; no limit as to prices. Entrance fee, 2s. No prize will be given for this class, as it is impossible to judge birds of different breeds against each other; but cards, V.H.C., H.C., and C., will be given for those pens which are of extra merit.

The entrance fee on all classes except as above stated, and Classes 40 and 41, will be 3s. 6d.; and for these classes exhibitors will be at liberty to affix a price on the birds, or enter them "Not for Sale," at their option.

Only 5 per cent. commission will be charged on sales of birds effected at this Show.

Two prizes of £1 and 10s. will be given for the general classes, and more if the number of entries warrant an addition.

The Show will be held under the usual rules, supplemented by the Poultry Club rules. Schedules of prizes and copies of the rules may be had, post free, on application, by card or otherwise. The entries will positively close on the 19th October.

It will be observed that several of the arrangements are novel; these are believed to be improvements, and it is hoped that you will testify your approbation of them by a reply to this circular, promising entries.

E. J. BLAIR, *Honorary Superintendent*.

The above circular has been forwarded to many fanciers, and seems to us worthy of comment in more than one particular. To begin with, the plan of sending round a preliminary circular with the object of obtaining, if possible, some idea of the amount of support likely to be accorded to a poultry show, strikes us as being one worthy of imitation. Of course the eventual success of the scheme and its continuation in future years must entirely depend upon the way in which the show is managed, and we may in a friendly way hint to its promoters, that as a rule somewhat

more of a guarantee for the good management of a prospective show is required than the names of distinguished patrons and honourable treasurers—viz., that it should be regulated by practical fanciers, but possibly in this case a list of the committee of management may follow with the schedule.

The chief innovation on established custom in the Doveridge prize list will be the rule that in the selling class the prizes shall be merely honorary. Of this we unhesitatingly approve for two reasons: 1, Because according to the circular "it is impossible to judge birds of different breeds against each other." There may be some slight exaggeration in this statement, but in the main it is true. We well know how perplexed conscientious judges often are at the end of their long day's work to place the prize birds properly in these classes, and how those troubled with fewer scruples award the honours in a somewhat happy-go-lucky fashion. The most careful judges usually pick out the best pen of each of three or four varieties for the three or four prizes, while perhaps the second or third best of one kind are really of that kind better than the best pen of one of the other breeds. 2, Because the custom of entering valuable birds just to win a money prize, the owner all the while intending to buy them back again, will be materially checked. The said practice has led to manifold controversies and dishonesty, and in spite of more than one legal decision to the effect that in a selling class an owner contracts to sell his birds, and therefore cannot bid for them or buy them back, is constantly resorted to either openly or through the quibbling medium of a purchase in another name or through an accomplice. Those who really wish to sell their birds will be equally able to do so from their intrinsic merit, and a doubtful purchaser will receive some aid from the commendations of the judge, bestowed in all probability more judiciously because it will not be necessary to place any pens in order of merit; those, on the other hand, who do not wish to sell will have no inducement to show in the class, and as at present defeat its very object.

Another commendable point in this schedule will be that only 5 per cent. commission will be charged on sale. It has often struck us that the customary 10 per cent. is in many cases very high and practically prevents sales by keeping up catalogue prices. Of course at such shows as the Crystal Palace and Birmingham the advantage of exhibiting birds is so great, the number of possible purchasers who must see them so enormous, that the commission is by no means excessive; but at many a smaller or local show it is simply absurd to make so large a deduction from purchase money. The Poultry Club rules are, we observe, to be incorporated in those of the show. This is a wise move on the part of its promoters. These rules were drawn up with great care by those well experienced in the difficulties which committees who wish to insist on fair and honourable competition frequently have to contend with, and will enable those less versed in such matters to steer clear of pitfalls into which they might otherwise fall.

There is a somewhat monotonous uniformity in the regulations of most poultry shows, we are therefore specially glad to hail the originality of these, combined as it is with sound sense.—C.

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
May.											
Sun. 15	29.812	55.0	49.2	S.W.	54.4	64.4	48.6	97.8	45.2	0.022	
Mon. 16	24.474	51.3	47.4	S.W.	53.9	58.6	46.6	103.3	41.3	0.027	
Tues. 17	29.986	56.7	50.6	S.W.	52.3	61.0	36.6	99.0	29.6	0.195	
Wed. 18	29.606	53.9	53.3	S.W.	52.3	64.5	51.3	116.0	50.6	0.217	
Thurs. 19	29.620	50.0	49.6	W.	52.3	62.5	48.3	114.4	46.6	—	
Friday 20	29.878	55.4	49.6	W.	52.3	63.6	46.4	121.6	40.9	0.010	
Satur. 21	30.291	57.7	51.0	W.	52.4	72.5	39.6	120.3	34.3	—	
Means.	29.810	54.3	50.1		52.8	63.9	45.3	110.3	41.2	0.484	

#### REMARKS.

15th.—Overcast; high gusty wind and much dust.

16th.—Cool and showery.

17th.—Bright and fine early, afterwards high squally wind and showers.

18th.—Wet morning; fine with bright sunshine between noon and 3 P.M., then overcast and rain; fine after 8 P.M.

19th.—Slight showers before noon, fine and bright afternoon and evening.

20th.—Cool, but fine and bright generally, shower only at 1 P.M.

21st.—Generally fine, bright and warm; slightly overcast at intervals.

Temperature almost exactly the average, the mean daily range less than last week, the maxima being lower and the minima higher. The air has also been less dry, and showers fell on five days.—G. J. SYMONS.



2nd	TH	Royal Horticultural Society—Great Show (four days). Exhibition at Manchester (seven days). WHIT SUNDAY. Bath and West of England Exhibition at Tunbridge Wells.
3rd	F	
4th	S	
5th	SUN	
6th	M	
7th	TU	
8th	W	

## ARE WE PROGRESSING?

THE thought has often crossed my mind within the last few years as to what would be the effect upon horticulture of the transitional times through which we are passing. Gardening is generally considered to be a luxury, and we know that the first effect of a diminished income is a curtailment of luxuries. How, then, can it be possible for our craft to keep its head up when the incomes of our wealthier patrons are daily growing less? Well, I have come to the conclusion that a great deal has passed for gardening of late years which deserves to be called by another name, and that real gardening has been proportionally neglected. We know that if Mary Jane when she leaves the village school, where her happy face and clean pinafore made one of its brightest pictures, suddenly rolls in the luxury of some £5 a year, she very soon becomes transformed into a different if not a prettier being. So, I believe, our wealthy classes, the patrons of horticulture, have been luxuriating, and for a time at least have, in studying how to be grand, thrown away their own inborn taste and blindly followed fashions set by persons who in many cases have no taste or refinement whatever.

But, "Hurrah!" said I the other day on opening a circular headed "School of Gardening," "we shall have it all right now. The sons of our employers will have nothing to do but pay a couple of hundred pounds, take a few practical lessons, then come back and teach us how things really should be done." Being in the neighbourhood of this said school the other day, as I do not like to be behind everybody else, I thought I would call and steal a few lessons in advance, but I was sadly disappointed. The Crystal Palace is certainly an elegant structure and worth a long journey to see; but I hope the next time I go, if such a punishment is to come upon me, that the terraces may be covered with 83,000 Foresters, as they were during my only other visit. School of Gardening indeed! Well, go if you wish to learn how not to do it. The teachers are there no doubt; one, indeed, is an old personal friend, who certainly ought to be efficient. But what should we think of the London School Board if it gave all its attention to supplying teachers and did not provide books and other appliances for instruction? Seriously, as a piece of ornamental gardening I pronounce the Crystal Palace grounds, as viewed from the terrace, to be an utter failure. The terraces are not in proportion to the building; the beds are, many of them, in the wrong places and the ugliest possible shapes; and the whole thing has a harshness which makes one feel indescribably uncomfortable, only relieved in my case by going downstairs

and looking at the fishes. Judged, then, by my experience at the Crystal Palace, my answer to the question at the head of these notes would be a decided negative. But happily I had some of another kind.

One of the things most noticeable to a countryman is the manner in which London itself is becoming ruralised. Trees are growing up everywhere as if by magic, bringing health and beauty where both are likely to be appreciated. A walk through Battersea Park, too, is a thorough enjoyment even for one who lives in one of the noblest parks in England; and even the Royal Horticultural Society's Garden at South Kensington, once a model of all that was ugly, though it would not be difficult to find some faults in it, is now becoming a very fair example of what a London garden should be.

The best example of ornamental grounds which it was my privilege to see near London, if not the best I ever saw, is that in which Wimbledon House stands, the residence of Sir Henry W. Peek, Bart. I will not attempt to describe it, but I advise all who like English gardening, as distinguished from Cockney and formal gardening, to obtain Sir Henry's permission and take a quiet stroll in these beautiful grounds without delay, for I am sorry to hear they are soon likely to be invaded by bricks and mortar. Practical gardening, too, is exceedingly well carried out at Wimbledon House, Mr. Ollerhead having many original ideas quite refreshing to one who does not like to always keep in the same track our grandfathers did without inquiring the reason why. The Orchids and Peach trees are marvels of cultivation; and the Vines, although not up to Mr. Ollerhead's standard of excellence, are such as most people would call good, and are still improving.

Another establishment where I saw plenty to admire was that which was brought into prominence at Anerly by Mr. Wills, and is so ably presided over by Mr. Bause, the raiser of those grand *Dracenas* which created such a sensation all over Europe a few years ago. I went fully prepared to see something good there, but I must confess that what I did see surprised me—house after house filled with one class of plants, and thousands of one variety in a batch so exactly similar in size and colour that they looked as if they had all been turned out of a mould; and that Mr. Bause and his assistants had nothing to do but stand them level and straight. The trade done in these plants is very great, and a house is cleared in a very short time; so that with the exception of a few specimens to show their character there was nothing but young plants to be seen, and these had evidently been grown very quickly. Mr. Bause has recently turned his attention to Ferns, which he grows marvellously well, and he has some very promising hybrid forms of this class of plants.

And now, what shall we say about Chiswick, dear old Chiswick? Well, here a few years ago we had a very striking instance that wealth and the smiles of the great may lead to positive evil. Chiswick as a centre of practical experimental horticulture is something approaching perfection; but Chiswick depriving herself of her own life blood to clothe in gaudy and unbecoming colours her profligate foster-child at South Kensington was a pitiable object. Now, happily, misfortune has taught the foster-child to be less vain, though far lovelier, and Chiswick is once more a credit to the Royal Horticultural Society. Gardeners, pay a visit, learn a lesson; and if, like myself, you cannot afford to become a Fellow, then pay a guinea annually and become a member, feeling assured that the money



will be well spent. Five thousand guineas from five thousand gardeners added to its present income and expended at Chiswick under its present able management would make it (if, indeed, it is not that already), the most interesting spot in the horticultural world, and give the subscribers a pleasure such as they can scarcely obtain elsewhere so cheaply.—WM. TAYLOR.

#### FILLING FLOWER BEDS.

THOSE who are in the habit of doing certain work at a certain and early date are liable at times to be forcibly reminded that ours is a very variable climate, and to find when early planting has been done that it would have been wise to have been less hasty in their operations. Many have already planted the greater part of their tender bedding plants with the result really of loss of time, as the cold frosty nights succeeding clear hot days most injuriously affects the previously sheltered plants. Those probably who commence bedding-out the first week in June, completing the work during the next week, will at the end of the month be the most forward.

The stock of plants with many appears to be limited in extent; in this case mixed planting will have to be resorted to, and probably will be found, if judiciously carried out, to give more pleasure than the blaze of colour obtained by massing one variety. The mixed plan is best suited to large beds, the smaller beds being most effective when planted with one or two kinds of compact habit.

In many instances much judgment is required in the selection of suitable kinds of plants for certain positions. For instance, Verbenas during an average season would inevitably fail if planted in any other but a somewhat rich retentive soil, and the Violas are equally moisture-loving. Petunias, the single varieties especially, thrive admirably in a somewhat poor and dry position. The stronger-growing Pelargoniums, both single and double, should have a dry position, or they will grow vigorously at the expense of the bloom. Calceolarias will fail in a poor soil and hot position, but good substitutes—namely, *Tagetes signata* pumila and the miniature French Marigolds, are not so particular in this respect. The soil should not be heavy and close for Iresines, Coleuses, Alternantheras, and similar exotics. Lobelias will not long continue to flower in a poor dry position, but the Golden Pyrethrum will thrive almost anywhere. Plants of a succulent nature succeed best in a light open soil. Such annuals as Asters, Stocks, Zinnias, Phloxes, and Dianthus should have a tolerably rich soil. The three first named are very effective when dotted among beds of Verbenas, Phloxes, and Petunias, which latter will have completely filled the beds by the time the Asters and Stocks have ceased flowering. The bronze, silver, and golden variegated Pelargoniums are very effective when interspersed with Violas and purple Verbenas—notably *V. venosa*; and so also in similar positions are the white and yellow Paris Daisies, *Abutilon Thompsoni*, and *Veronica Andersonii* variegata.

In the mixed borders it is very important that the different varieties are planted according to their respective heights, and if the other line consists of one variety such as Pyrethrum, Lobelia, and Cerastium, the effect will be improved. No plant should be put out with its ball of earth in a dry state, and as a rule after firmly fixing the plants the soil should not be levelled about them till a good watering has been given. By thus enclosing moisture further cold, and oftentimes useless, waterings are un-called for.

Carpet beds to be a success must be well done, and as they require a great number of neat-growing plants few amateurs aspire to them. Much, however, may be done with a quantity of small Pyrethrum for the fine lines, *Sedum glaucum* and *Mentha* for the groundwork, and Alternanthera of sorts, *Oxalis rubra*, Iresine Lindeni (pegged down), and *Coleus Verschaffeltii* for filling in the principal figures of the design. A complicated design should not be attempted by beginners; and in this case, by using hardy plants for marking out the design and for the groundwork, the beds may easily be refilled with other hardy plants for the winter.—A FLOWER GARDENER.

#### APPLE AND PEAR BLOSSOM IN WILTS—FRUIT TREE CULTURE.

I HAVE seldom seen so splendid a floral display on Apple and Pear trees as has been on the latter, and is on the former as I write this eighteenth day of May. How well we can understand the motive of our ancestors in mingling the flower garden and the general fruit garden. As an old writer remarks in some such words as these, "Verily the Apple tree is beauteous at two seasons—

when covered with blossom, and when laden with fruit." This is one reason why I have always advocated the partial admission of Apple trees, Pear trees, and Cherry trees into thinly planted shrubberies near a house. This year the blossoms have no pinched or withery look, but each petal is at its best. Last summer the trees had a rest and the sun was powerful, so the wood was well ripened, hence the result in abundant blossom, and I trust a further and fuller and more satisfactory result in fruit.

To speak of Pears first. All save Josephine de Malines have bloomed abundantly, and these trees I must attack at the roots. I would premise that I grow all my pyramids naturally, never cutting a branch unless it crosses another. I have nothing whatever to do with summer-pruning or winter-pruning; as the tree comes from the nursery so it grows, forming in some cases elegant pyramids, in others diffuse and spreading trees: of course I prefer the former. The result as to growth is that all my trees are thin, none are close bushes, but so thin that the sun warms all the wood and the air reaches every part. That this is the best and most profitable mode of growing pyramids every year makes me more certain. Old, possibly prejudiced, gardeners have seen them, and confess that I am right and the old mode is wrong. In regard to one method of checking undue growth I am a Spartan—viz., root-pruning. Thus in a strong-growing tree, whether Apple or Pear, I am unsparing; to such an extent sometimes that I have to stake the trees to keep them from being blown down. But the result is always satisfactory. Thus I have a Beurré Hardy, a Beurré Diel, and a Beurré d'Amanlis which have been fruitless, and the first-named without even a blossom until this year, and it is covered, as also the others. What I do when a tree refuses to bear, even when very severely root-pruned, I will detail when I come to speak of Apples. One fine Pear I find much liable to injury by frost—that is Napoleon; while the blossom of others near appears uninjured by an April frost, its blooms are turned into the colour of tea leaves.

I have every Apple tree covered with blossom except Peasgood's Nonsuch, which as yet has declined to show more than here and there a bloom, and has not fruited. All the others except a few of those planted last year are in full floral beauty. As to the newly planted, I am always glad when they simply grow at first, but bloom in after years.

I have spoken of root-pruning to so great a degree as to necessitate the staking of the trees for at least the year after. But occasionally I resort to stronger measures. Thus I have a Dumelow's Seedling Apple which reached me five years ago last autumn, as most of that kind do, a picture as to symmetrical form. It instantly commenced growing, but was fruitless. By a mistake it was heavily manured—it grew, of course, still stronger; I root-pruned it, but still it grew. In November, 1879, I removed it ten or a dozen yards, cutting the roots severely and supporting it by three stakes. Last year it was in feeble health, the desired check had been given; this year it is a mass of bloom. I measured the tree and found it 12 feet in height, and the lowest tier of branches right across being about 11 feet. Its proportions and pyramidal form are very pleasing. I was urged to prune it but declined, being quite sure that if I keep a tree thin, in time fruit spurs will form on every branch. This year I have my reward, for there is blossom at regular intervals on its leader and on every branch. From such a tree so managed I expect to have a heavy crop, not merely a few as in small and close-pruned trees. As to this variety, Dumelow's Seedling or Wellington, I do not find any other its equal in health and value of fruit. I often wish that its opposite as to season, Lord Suffield, was equally strong in wood and growth. Ecklinville Seedling is my next favourite, then Stirling Castle, while among eating Apples Irish Peach and Cox's Orange Pippin reign supreme. I find hardy fruit culture so interesting that I long to have more room for experiments than can be allowed in a parson's garden.

I find that excellent Apple, Summer Golden Pippin, a shy bearer. Is that the experience of other growers?—WILTSHIRE RECTOR.

P.S.—I noticed with much interest in the Journal of May 19th the account of the unpruned Pear trees at Wimbledon House. In our competition with America it strikes me as a great point to grow all our fruit trees as large as possible, particularly our pyramids, inasmuch as on size of tree depends largeness of crop. A small pruned pyramid may produce a dozen or more Apples or Pears, while an unpruned one produces many dozens; hence size is so valuable. Give with that beauty, utility, and largeness of fruit, and you have a chance of doing something; also the tree must be healthy.

PYRUS MAULEI.—I can fully corroborate Mr. Charley's remarks with reference to this handsome Japanese shrub both as to

its free-flowering qualities, and as a useful fruit-bearing shrub. At Messrs. Maule's nurseries I saw some thousands of plants ranging from a few inches to several feet in height, were all covered with their beautiful golden fruit, the weight of which, unless supported, bore the branches to the ground. I was informed the fruit was all utilised in the making of jam, and some which I tasted was very agreeable to the palate.—G. S., *Sandbeck Park*.

### DOUBLE FLOWERS.

DOUBTLESS not a few of your readers were amused and interested by "SINGLE-HANDED'S" onslaught on double flowers (page 391). I apprehend, however, that if he had been a little less sweeping in his anathemas he would certainly not be single-handed here. But he must allow that even as a variety of form a double flower has its charms; and as he is very strong on the score of variety perhaps he will kindly allow us a few in which it is admissible—nay, desirable. May I, as a worshipper of the Rose, crave for her at least that she reigns more as the "Queen of Flowers" since she has become double? Indeed, lovely as she is in her native simplicity, I apprehend no one would bestow the title of "Queen" on the Rosa canina, for the Orchids which "SINGLE-HANDED" well claims as wild would certainly disprove her. Again, could we have had all the different varieties of the Rose or Dahlia, for instance, had we been restricted to single flowers? I should say, Most certainly not; it is the doubling of these flowers that has given us these varieties; and in regard to these two flowers, the Rose and Dahlia, I cannot but think very few will be found to agree with "SINGLE-HANDED."

"Double flowers in general possess neither simplicity nor elegance, they are mostly ungainly monstrosities." Thus writes "SINGLE-HANDED," and with the words "in general" very distinctly marked. I confess I am almost disposed to agree with the sentence. Some flowers it is absolute cruelty to double, and I wonder rather that your correspondent had not specially mentioned them, I mean all the tubular flowers. Take a Petunia, a Convolvulus, or any of that kind of flower, and the person who has achieved the triumph of doubling it has, in my humble opinion, always succeeded in another thing—that is, destroying the character, and with it all the loveliness of the original. If we lose the vista down the throat of the flower and all the delicate shading by which the colour is lost as we get to this portion, and with this loss of the shading all the exquisite colour of the throat itself (for though nominally white, it has a pearliness of appearance which is indescribable), then I agree most decidedly with your correspondent—we have lost one of the greatest charms of the flower. Some flowers will not bear doubling, and it is to be regretted that the early attempts were not at once "put down." Tubes and bells certainly are spoiled by it; all flowers, like Pelargoniums, when once doubled will no longer "bear inspection;" they may do at a distance for effect, just as a character of a servant may on paper appear all we could desire, but the close inspection, like the personal interview, dispels all the enchanting vision.

I recollect a friend of mine, when the triumph (?) of doubling the Fuchsia had been discovered, saying, "Indeed he had never seen a double Fuchsia." "Have you not?" said another friend; "well, I will tell you that when you do you will wish to throw it away." Here again I agree. I always want to throw them away; they, like the Petunias, are "monstrosities." What more lovely than the Lily of the Valley? and yet a Goth has doubled it. Well, what shall I say of the successful grower? The least that he should be—well, not hung, but at least suspended from ever having a similar chance!

Poor Dandelion! a wild flower, too; "a wisp of petals!" Well, I own to having often thought, and sometimes remarked, if it had never been seen what a furore its introduction would have caused! Surely it does not deserve quite all that "SINGLE-HANDED" says of it. It is beautifully regular, and thus possesses a great charm, and I have noticed that little children are attracted to it; indeed, for some years it was the favourite flower of one of my children. I cannot help thinking that one of the reasons why it is disliked by older children is the bitterness of the milky juice, which also stains the hands and gets the small people into trouble, and hence it becomes a "hissing and a byeword." Perhaps, too, yellow is not the most favourite colour; certainly when, as in Chicory, you get a somewhat similar flower, not yellow, it is welcomed by most lovers of flowers as very pretty.

Whilst, then, agreeing very nearly with "SINGLE-HANDED," and almost joining in his protest against doubling flowers, I must confess I cannot go with him in his remarks on form. To most of us I apprehend a round outline is the most beautiful in flowers,

and—I confess it—I think with every reason. Setting aside the colour, surely the roundness of outline in the Pansy, Pelargonium, and Cineraria for instance is a great improvement on the stars and irregularities of outline, amounting to raggedness, of the flowers from which our present varieties were originally produced. I prefer the more perfect form to the greater diversity of form, and should be content with the diversities of colour to make my variety. We should still have other flowers to show us the diversities of form, as the Lilies, Cyclamen, Fuchsia, Snapdragon, and Salvias, whilst it must not be forgotten that in the foliage we have every possible variety of outline, and therefore may allow the flower to be mainly formed on the best model.—Y. B. A. Z.

### LEDUM PALUSTRE.

WILD ROSEMARY is one of the popular names by which this pretty little North American shrub is known, a title which has probably been conferred upon it because the foliage possesses a powerful aromatic odour that is particularly notable when the leaves are crushed in the hand, or immediately after a shower on



Fig. 97.—*Ledum palustre*.

a warm day. In other respects it is widely separated from the true Rosemary, and is a close ally of the Kalmias and Rhododendrons, which are so well known and appreciated in gardens. It is a compact shrub, rarely exceeding the height of 3 or 4 feet, and bears small, narrow, elliptical, dark green leaves, and close corymbose racemes of white flowers, which are very freely produced and render the shrubs very attractive at this time of year. They are especially suited for planting in the front of shrubbery borders, and being evergreen their neat habit renders them attractive at all seasons. Moderately light soil is requisite to obtain them in their best condition; but they are not very particular, and if the border is well drained little difficulty will be experienced with them.

Both *L. palustre* and *L. latifolium*, also known as Labrador Tea, possess some medicinal and economic properties. The former is said to contain qualities which render a decoction of the leaves beneficial as an external application in cutaneous diseases, and in some parts of Germany a peculiar kind of beer is also prepared from the leaves. *L. latifolium* is considered to possess tonic qualities, the leaves having been employed to furnish a substitute for tea, and they are also infused in beer, which they "render heady, and cause headache, nausea, and even delirium."

The woodcut (fig 97.) represents a spray from Messrs. Osborn and Son's Nursery, Fulham, where these plants are well grown.

NEW AND OLD PEACH TREE TRAINING.—Permit me to say that I regard Mr. Pettigrew's Peaches that produced 112 dozen fruits in three years as a remarkably good example of extension training, seeing he does not lay in laterals; but he does not give

the size of the trees when planted, nor state how much fruit he gathered the first and second years. Would he kindly do this, as he has the quantity booked? The testimony to the present condition of his trees is, to me, a particularly satisfactory point. Mr. Pettigrew's own knowledge of the system "before I was born" puzzles me, however, because he and I were both whiskerless lads at Drumlanrig Castle together, and there were then only a few years between our ages. The examples he speaks of before I was born must be only traditionary, I am afraid.—J. SIMPSON, *Wortley*.

#### AURICULAS AT SHIBDEN HEAD.

SHIBDEN HEAD, the residence of Mr. Woodhead, is situate about three miles from Halifax and five from Bradford; the nearest railway station to which is Holmfild, on the Great Northern Company's line from Bradford to Halifax, the distance from which station is about a mile and a quarter up a steep hill known as Windy Bank, and windy it is when the wind is in the west. When the top of Windy Bank is reached a short descent brings the visitor to Shibden Head, which is upwards of 1000 feet above the sea level. Here, although so high and cold, not only does the Auricula thrive but it grows finer than I have seen it elsewhere, as, in addition to the plants being robust, the yield of offsets is great. Mr. Woodhead grows his Auriculas in three houses on the eastern slope of the hill, which forms a portion of the dividing range or backbone of England, running betwixt Lancashire and Yorkshire.

No. 1 house contains the stock plants of named varieties, comprising nearly a thousand plants. Here are the large collections of named sorts, consisting of upwards of forty Col. Taylors, thirty-five George Lightbodys, the same number of Lancashire Hero, Smiling Beauty, &c. The bloom in this house was superb, the plants being well grown and the trusses large. Amongst the best were Col. Taylor, green; Prince of Greens, very large, only weak in its tube, which is nearly green. In greys as usual many were good; whilst in whites Acme, that free-growing sort raised by the late Mr. Read, was beautiful. Amongst fancies Gorton's Stadtholder was fine with twelve pips. All these plants were in glazed pots, which are evidently suitable for the purpose. Two points are particularly noticeable as regards the plants being grown in glazed pots. One is that only  $2\frac{1}{2}$  inches depth of compost is required, the lowest part of the pots being filled with crocks; and another is, that the plants do not require a third of the water which they need in porous pots. To this Mr. Woodhead ascribes the robustness of his plants, as he says that where so much water has to pass through the pots the strength of the compost is washed away without benefiting the plants.

In the next house were the seedlings, which I was most anxious to see. These were planted in shallow boxes, originally twenty-two plants in a box; of these some had bloomed in the autumn and had been removed. To see the seedlings I had to pay a few visits in intervals of a few days each, and by that means I was enabled to note a few of the best flowers; but the stock of really good flowers consists of hundreds, many of them better than any in cultivation. This can only be ascribed to the great care taken in hybridising, no flower being used for that purpose in which there was a chance of either being self-crossed or by bees. Another thing Mr. Woodhead kept in view was always to have a rich tube in one or both of the parents when hybridising, and to this fact I attribute the beautiful golden tubes his flowers possess. Another thing very noticeable was how the properties of the parents were to be seen in the offspring—a sure proof that the work had been properly done. It was particularly noteworthy the very small percentage of pin-eyed flowers there was amongst them, whilst in only three instances were good flowers spoiled by having a pin eye.

House No. 3 contained seedlings which had bloomed in autumn and had been potted at that time. These plants were very robust, and amongst them were some very fine flowers. There was also a number of seedlings in boxes from seed sown about Christmas, 1879. Many of these were blooming on small plants, a few of which were very promising, but the major part of these will not bloom until next autumn or spring.

Of fancy flowers there were some with immense trusses nearly like Hyacinth stems owing to their erect growth; whilst some flowers were nearly white, drab, buff, puce, &c. In no case was there an absence of paste, nearly all the flowers except Alpines having an abundance of it. This is rather strange, as I recollect when I first commenced growing Auriculas thirty years ago I was told by old growers that some varieties would yield only Alpine flowers. This must have been caused by Alpines being grown amongst edged flowers, and most probably crossed by bees, which is nearly an impossibility in hybridised flowers. Such flowers the bees will not visit, having no doubt an aversion to a mutilated

flower. I may say that fully one-half of the seedlings will be grown till they are fairly proved, all possessing more or less good properties. Mr. Woodhead's garden must have been visited by hundreds to see the bloom, as for fully three weeks nothing could be done owing to the number of visitors who came from all parts. However, I would recommend another year that certain days in the week should be set apart for the public to see the plants. In addition Miss Woodhead has two houses full of good plants, and which are well worth an inspection.

The following are descriptions of some of the best varieties. The numbers attached to each sort are the book numbers of the parent plants. Under these numbers the plants will continue to be grown until such times as names are settled on for the varieties.

<sup>13</sup> Green edge. Tube yellow; paste fine and solid; body colour dense and black; edge deep green. Flower smooth and circular. One of the best greens in this unique collection.

<sup>8</sup> Grey edge. Golden yellow tube; paste extra fine; body colour black, evenly laid on; fine smooth edge. An immense trusser, and one of the best greys in the collection.

<sup>84</sup> White edge. Tube orange yellow; paste dense and good; body colour black and solid. A true white of the largest size. Plant of excellent habit and slightly mealed. The finest flower I ever remember to have seen.

<sup>18</sup> Dark crimson self. One of the finest tubes—rich golden yellow; paste solid and fine; edge smooth; colours finely proportioned. A grand flower.—G. RUDD.

[Mr. Rudd has sent us descriptions of thirteen green-edge flowers, eleven greys, four whites, and eight selfs. We publish one of each section as an example, and will retain the others until the varieties are named. "D., Deal," has also received some flowers from Mr. Woodhead, and has sent us descriptions of them; but it can be of slight public utility to publish them, as the flowers are necessarily under numbers, which do not indicate to our readers the parentage of the varieties. Our correspondent remarks that the flowers that have been submitted to him "give promise of valuable additions to our catalogues in years to come. The flowers are especially remarkable for their rich tubes, which are either deep yellow or orange, and a great advance on many of the newer and some of the older varieties that in this respect are defective." We may add that we have inspected Mr. Woodhead's collection of Auriculas. The plants are the finest we have ever seen, and the white-edged flower described on page 402 was the best of its class that has been brought to our notice. It is evidently the No. 84 x 4 described above by Mr. Rudd; and "D., Deal," also refers to it as a "most refined and beautiful flower." Knowing the great care that has been exercised in hybridising by Mr. Woodhead, and judging by the descriptions of the flowers sent to us, we anticipate some important additions to the "Auricula Royal" from Shibden Head.]

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 23. NEW SERIES.

WE come now to consider some singular, though not generally beautiful, species, which have furnished a puzzle to naturalists for many years past. It is all but certain that they will never agree upon the location of these species, for some declare them to be insects, some will only own them as crustaceans, and others again would form them into a separate division or class. To the ordinary observer they are insects, and so possibly they will remain, because in size and habit they appear to be so nearly akin to the insect tribes. None of them are of such dimensions as would make them conspicuous; and while some are decidedly hurtful to our plants, there are species that help to diminish the numbers of our garden enemies.

To commence with the Thysanura, which constitute the little order of the Springtails (fig. 98), thought in some things to approach the crabs, in others to resemble the lace-winged flies. The family Collembola includes species that are abundant during most seasons about hotbeds and within frames, the warmth of which appears to be agreeable to their senses. Also in the open borders, though seldom noticed there, these tiny creatures frequent succulent plants, more particularly when they are in an unhealthy condition. The presence of certain fungi has an attraction for them, and decayed roots or prostrate branches of trees which have become damp occasionally turn out to be the abiding place of myriads upon myriads of Springtails, which have had given them in some localities the appellation of "ground fleas" from their jumping propensities; but they have rather the aspect of a mite than that of a flea, the antennæ being generally con-



spienous, the legs short, the body elongated or globular, and a springing apparatus is situated at the tail. Herein they differ from fleas and various species that leap by means of the hind legs. This apparatus is closed up when out of use, and, as Sir John Lubbock remarks, it does not seem to be requisite in the case of creatures having the habits of these Collembola. Possibly the power of leaping is advantageous to them should they have to migrate suddenly in pursuit of food, but ordinarily they lie quiet, keeping more or less hidden under some substance frequented by them, or in sheltered nooks.

Nearly the largest of the species is *Smynturus fuscus*, which is about a line in length, and feeds chiefly upon fungi in their early stages, those growing upon damp bark being its especial resort. Sometimes these have been discovered in such thick swarms that

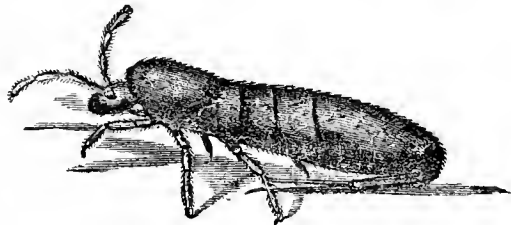


Fig. 98.—A Springtail (*Podura*, species) magnified.

they could be gathered up by spoonfuls. *S. viridis* has greenish eyes in black spots; it is common about Cucumber frames, where also two or three *Smynthuri* more are occasionally taken, but they have not been named with certainty. Curtis, in his "Farm Insects," alludes to a minute species, which was said to be injurious to the leaves of the Potato, and which was black with brownish horns. Probably it is the insect that Sir J. Lubbock separates as *S. niger*, very small and sluggish. Another species of a more lively disposition is to be detected during the winter months, *S. ornatus*; this is black, mottled with green or brown, and leaps or runs amongst dead leaves and logs of wood. As do others of the Collembola, it helps forward the decomposition of matters that fertilise the soil, and which unchanged would render the air unwholesome. All the *Smynthuri* dislike drought; also the application of salt, even in weak solution, soon kills them. Several of the insects in this group are almost colourless, and one or two species are supposed to be eyeless; also it is perceivable that though the general name of "Springtails" is given to them, some species cannot leap, but they run rapidly when alarmed. A few live under beds of seaweed partially exposed to the tide. *Lepisma saccharina*, in the small family of the Lepismidae, is very

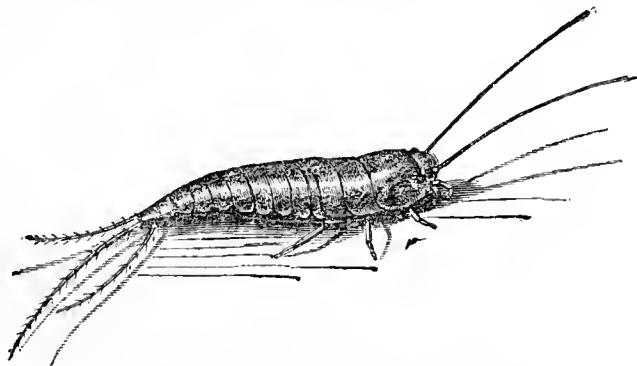


Fig. 99.—Fish-scale (*Lepisma saccharina*) magnified.

common in some houses, manifesting a liking for sweets. It has been popularly called the "fish scale," from its body being clothed with scales. This is larger than the Collembola, being nearly a third of an inch in length, and it has a three-forked tail.

The Acarina or mites, if not true insects, certainly form a connecting link between the spiders and insects, the thorax and abdomen being closely joined, not united by a stalk, as in the spiders. In outline they resemble spiders, having eight legs when matured, but only six during their early stage of existence. It is not to be expected that gardeners should distinguish amongst species that often baffle men of science, and the place where they may occur does not always afford proof as to habit. Some, indeed, are highly injurious, but the majority occupy a neutral position, and it is not necessary to dwell upon them here. Conspicuous, however, amongst the mites that are to be found about gardens or plant houses are those that belong to the family of the Tetranychidae, called "spinning mites." Best known of these is the annoying species, familiar to us as the red spider, but in colour variable

according to the plants it frequents, being sometimes greenish or brownish, sometimes a rusty red or paler, usually semi-transparent, and lacking the velvety appearance that distinguishes another red species, not a spinner—the harvest mite. There does not seem to be any noticeable difference between the hues of the young mites and the "old stagers," except that, owing to their skin being thinner, the juveniles look more transparent, also they are less active. These have only six legs, two more being acquired when the adult stage is reached.

The thread that is spun by this mite (*T. telarius*) is so very delicate that we cannot see it without a glass, except it is woven into a web. This is spread over a leaf by the united action of the claws of a number of individuals, usually, and it secures them from being dislodged, as their foothold without the web is not very firm. Leaves are particularly attractive to them which have hairs or inequalities, about which the threads are dexterously woven. A variety of sizes may be found congregated on a single leaf, a colony perhaps of hundreds, and under their influence the vitality of the leaf gradually vanishes, and a sickly tint of yellow or grey announces its death. The influence of these mites is unfavourable, not only because they make numerous punctures in leaves and draw up the juices with their suckers, but because the pores are clogged by the fluids they excrete. Sulphur has been repeatedly proved to be of all applications the most destructive to them; soft soap and water is also fatal if it can be brought into immediate contact. The red spider has also some natural enemies, such as the grub of the lace-winged fly, which clears them off a leaf with surprising rapidity.

Hardly distinguishable from the preceding is the *T. cucumeris* of Boissduval, said to make Cucumbers and allied plants its special object of attack, though wandering from these to other plants in the kitchen garden. The economy of the Rose-haunting *T. Rosarum* is different from that of many of these mites, since it has only been detected upon unhealthy trees, the leaves of which showed a growth of fungi, such as *Uredo Rosæ*. This mite is green and slender. *T. ferrugineus* has been more observed on the Continent than in England; it is minute and very destructive to the leaves of Cyclamens. Boissduval, indeed, thinks the only remedy is to burn at once a plant seen to be infected.—J. R. S. C.

#### PROPOSED PRESENTATION TO MR. JOHN DOMINY.

IN recognition of his long and successful labours in enriching our collections of Orchidaceous plants especially, we published a portrait of Mr. Dominy in our issue of July 1st, 1880, page 11, and appended a list of the plants he has raised, with their parentage. In the following issue, on page 29, a correspondent—"DUBLINENSIS"—than whom no one is better able to form a just estimate of the merits of a fellow worker in practical and scientific horticulture, wrote as follows:—

"On opening your esteemed Journal of to-day (July 1st), I was delighted to see such a truthful likeness of Mr. John Dominy, who has for so long been the valued director of the Veitchian nursery at Chelsea. In my humble opinion you deserve the thanks of all horticulturists for having given portraits of two of the most useful gardeners of the time—I beg to use the word gardener in its best and widest sense—Robert Fortune and John Dominy; one a most successful collector, the other apart from his business tact and high cultural abilities, a man who led science by his practice as a hybridiser of Orchids and Nepenthes—the aristocracy of the horticultural world. We have had portraits of gardeners and horticulturists by the dozen, but you have struck a chord of sympathy with those of the two gentlemen I have named, both of whom have done so much in the quiet unostentatious manner so indicative of sterling merit. Poor Robert Fortune died before half the present generation of horticulturists knew his worth; fortunately we have John Dominy still with us. Shall his merit die with him unrecognised by his fellows, or will our brethren give him with their good wishes something like himself—simple, useful, and good, to remind him of the active part in the battle of life through which he has passed, and from which he has so recently retired? All that is wanted is a token of good will from those who recognise his ability or revere him as a staunch and true friend. Those who know Mr. Dominy best will be aware how far his thoughts or wishes are from desiring anything in the shape of a 'testimonial,' yet anything of a spontaneous expression of good will on the part of his compeers is welcome to any man who feels that he has done his 'level best' to deserve it. That Mr. Dominy does deserve such an expression of respect is beyond question, and I shall be most happy to add my own mite towards such an object."

From other letters we received it is evident that a disposition exists to convey to Mr. Dominy a tangible tribute of esteem; and we learn with pleasure that the question has assumed a practical form, as will be perceived by the following letter from Sir Trevor Lawrence, Bart., who writes to us as follows:—

"I am anxious to bring to notice the strong claims of Mr. Dominy

upon all lovers and cultivators of Orchids. Mr. Dominy has now retired definitively from the service of Messrs. James Veitch & Sons after being with them more than thirty-five years, carrying with him the esteem of his employers and of all who have had to do with him. I need not enlarge on Mr. Dominy's high personal character, on his industry and integrity, or on his courteous civility and attention to all. His special knowledge and skill are well known, and have been a great help, to nearly every Orchid grower in the kingdom. Mr. Dominy was the pioneer of the hybridisation of Orchids, and his skill has enriched our houses with many beautiful hybrids, such as *Calanthe Veitchii*, *Cattleya exoniensis*, *C. Devonensis*, *C. Dominiana*, *Laelia Veitchiana*, &c.

"It is not desired to do more than give Mr. Dominy a well-earned mark of the gratitude and esteem Orchid growers feel for him. Several subscriptions have already been promised, varying from £5 5s. (the maximum fixed) to 10s. 6d.; and the following gentlemen, to whom alone I have as yet applied, have promised me their co-operation—Rt. Hon. J. Chamberlain, M.P.; W. E. Brymer, Esq., M.P.; Sir Henry Peek, Bart., M.P.; Lord Rendlesham, M.P.; F. A. Philbrick, Esq., Q.C.; J. S. Bockett, Esq.; S. Lea, Esq.

"I add a list of Mr. Dominy's principal hybrid Orchids—*Calanthe Domini*, *Phaius irroratus*, *Calanthe Veitchii*, *Cattleya Brabantiae*, *C. Manglesii*, *C. quinquecolor*, *C. Pileheri*, *C. Pileheri alba*, *C. Dominiana*, *C. Devonensis*, *C. exoniensis*, *C. telix*, *Laelia Veitchiana*, *Dendrobium Domini*, *Cypripedium vexillarium*, *C. Harrisianum*, and many others."

The other hybrids alluded to will be found on the page quoted. We trust that the proposition now submitted to the horticultural public will be widely responded to, and will be conducted to a successful issue.

Subscriptions will be received by Sir Trevor Lawrence, Bart., or at the London Joint Stock Bank, Pall Mall, S.W.

### THE CARNATION.

ALTHOUGH the Carnation is one of the most beautiful and fragrant of florists' flowers, and may rank with the Rose, it does not appear to attract the attention of florists, for exhibitions of the flowers are not numerous, and in some degree this may be attributed to the attention the blooms require during the period that they become nearly in a state for staging. Daily do they need looking at, and many also require the pods being tied to prevent bursting, which would disqualify them for exhibition; and again, dressing the flowers and carding them is what few can do properly, and where there is a large number of pots much time must be spent in doing all that is requisite to procure fine blooms.

The Carnation is generally supposed to be a native of this country, and was no doubt raised from the red Clove Pink, which is found growing upon Rochester Castle, as well as on rocks and old walls where the soil is dry. According to Chaucer the Clove Gilliflower was cultivated as early as the reign of Edward III., and at that time was employed to give a spicy flavour to ale or wine. In the time of Queen Elizabeth it was in great estimation, and often celebrated by the poets of the day. Gerard enumerates forty-nine varieties that were cultivated in the time of Charles I., whose consort was extremely fond of flowers; and although many varieties were procured from France and other parts of the continent, yet the largest and principal kind of Carnation was called the old English Carnation by way of distinction. Mr. John Ray remarks in the "Flora," which he published in the year 1665, that the Dutch florists at that period had more than one hundred distinct varieties by name, all of them fair large double flowers. In a late edition of his work 360 good Carnations were enumerated by him.

In the year 1828, the period I commenced growing Carnations, the flowers were little behind what they are at the present time; but the Picotees of that time would scarcely find a place in any cottage garden now. There was not any that were edged, or rather laced, but many irregular stripes, and they continued without any improvement for many years. A variety called John's Prince Albert was the ringleader of our present varieties. It was free at seeding; and Ely, one of our greatest growers and raiser of seedlings, took advantage of it, and from it raised Field Marshal, and several small growers raised some which were an advance of those then generally grown. Nulli Secundus was raised in Yorkshire, which was the leading place in England for growers and raisers. This variety for some time took most of the first prizes, and sold at upwards of 30s. the pair. The improvement from that time became rapid, and those growers who lived when such indifferent varieties were then grown would at the present time be astonished. Mr. Charles Turner has improved the Picotees, and Mr. E. S. Dodwell has also done much in the same direction, and Mr. Simonite of Sheffield has assisted and shown some extremely fine novelties. Rose Picotees were discarded for many years, and now they have become very attractive.

Carnations are divided into three classes—Bizarres, Flakes, and Picotees. The bizarres are so named from the French word, which signifies odd or fantastical. The flowers in this class have not less than three colours arranged in irregular stripes, termed by florists ribboning. Scarlet, purple, and pink are the three colours most predominant. The two first are seldom met with in the same flower, but the two last more frequently. When the scarlet predominates and is united with a paler colour, or, as it sometimes happens, upon a white ground, it is called a scarlet bizarre, of which there are many shades and varieties; when the pink or crimson abounds it is termed a pink or crimson bizarre; and purple bizarre when the purple abounds. The crimson bizarre is so called when the pink or crimson is high and rich in colour. The flakes are distinguished as follows—Rose, scarlet, and purple flakes. Rose or pink flakes are called from the deepness or paleness of the colour; the scarlet from the stripes being a bright scarlet; and the purple from the purple stripes.

The Picotees are so called from a French word signifying pricked or spotted; but this style of marking is now superseded by a solid edging of red, purple, and rose colour instead of stripes. The rose and yellow Picotee have been much admired, and consequently have met with admirers who have devoted much time to improve them. The yellow ground ought to be much higher in colour than it generally is, and if attention is paid to it no doubt it will rank very high in the esteem of florists.

—JOHN SLATER.

### CARPET BEDDING.

HAVING been requested by some of our correspondents to submit diagrams for planting round beds on the carpeting system we publish the following, which have been supplied by Mr. Graham, who has also suggested modes of planting them effectively. It is, however, not at all necessary that the proposed

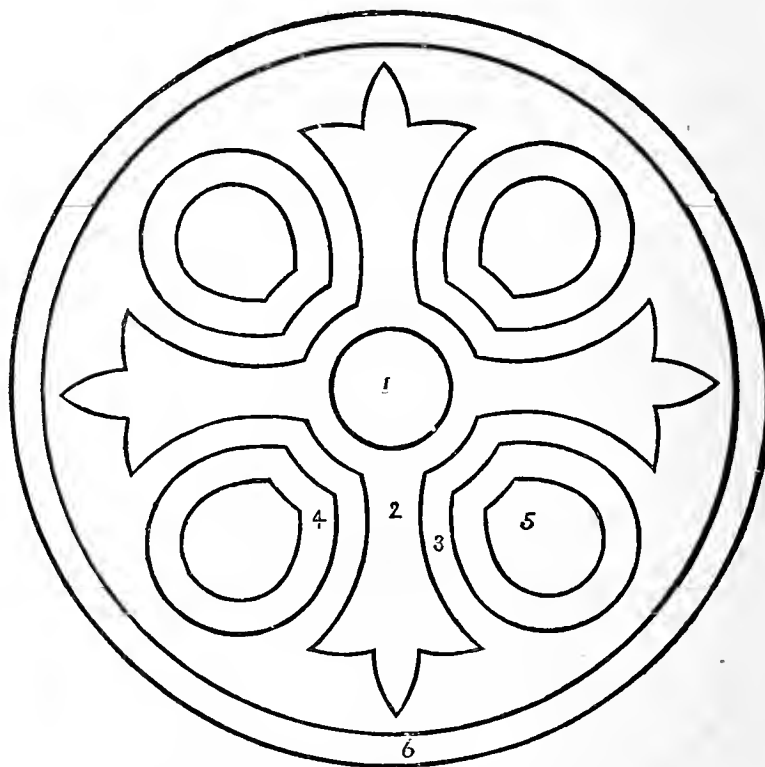


Fig. 100.

1. *Leucophyton Brownii* and a dark centre plant.
2. *Alternanthera* of any kind.
3. *Mesembryanthemum cordifolium variegatum*.
4. *Herniaria glabra*.
5. *Alternanthera amœna*.
6. *Echeveria* or *Sedum* (as previously directed).

method of planting be adhered to, as this point can best be determined by individual taste and the plants that are most readily obtainable. The present is the precise time for furnishing the beds; if done earlier such tender plants as *Alternantheras* are often injured, and are long in recovering from the check they receive at the outset. In planting the beds it is important that the plants in lines and panels be all of the same size, as the effectiveness of the beds depends to a very great extent on the care that is exercised in this respect and on accuracy in planting. Close planting is advisable for immediate effect, and thinning-out

can be done afterwards as is needful. It is not proposed to publish any other diagrams at present, as those now given, with

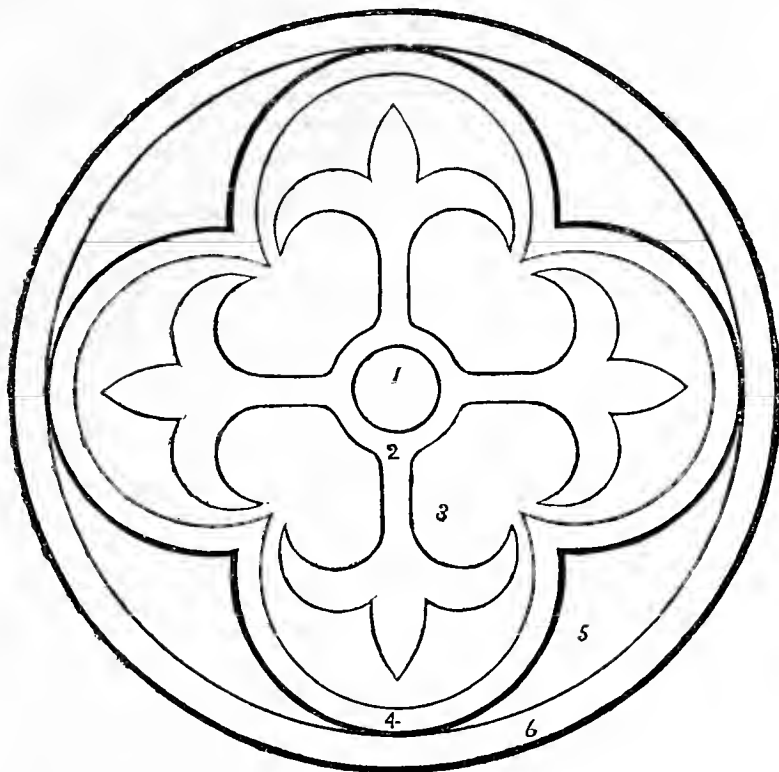


Fig. 101.

- 1 and 4. *Alternanthera amœna*. No. 1 with a tall centre plant.  
2. Golden Pyrethrum.  
3. *Herniaria glabra*.  
5. *Mesembryanthemum cordifolium variegatum*.  
6. *Sedum* and *Echeveria* (as before described).

others that have previously appeared from time to time, will be sufficient for affording guidance to those needing it on this mode

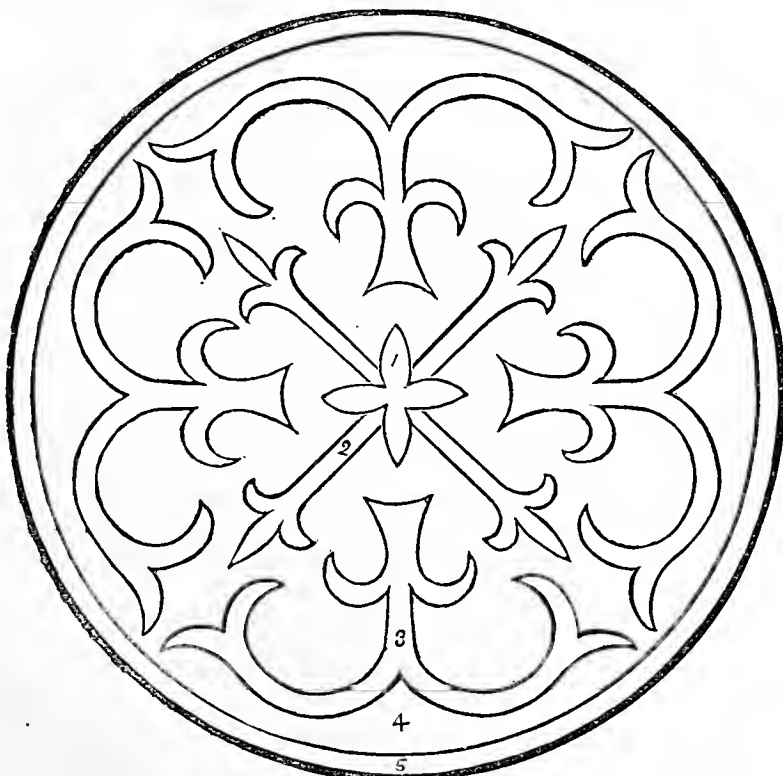


Fig. 102.

1. *Alternanthera amœna*.  
2. *Leucophyton Brownii* or *Antennaria tomentosa*.  
3. *Alternanthera* of any kind.  
4. Groundwork of *Herniaria glabra* or *Mesembryanthemum cordifolium variegatum*.  
5. Raised about 5 inches, and planted with *Echeveria secunda glauca* interspersed with *Sedum glaucum*.

of furnishing beds on lawns and terraces. The proposed methods of planting the beds now published appear under each diagram.

**AUSTRALIAN GRAPES.**—Mr. G. Bunyard sends the following extract from the Maidstone Journal:—"Mr. B. G. Berry, native of Faversham, has undertaken to receive from the Agricultural and

Horticultural Society of South Australia—where he lately called on a trip round the world—a consignment of Grapes by way of experiment. The South Australian Grapes are said to be the finest in the world. The various modes of packing will be tried with a view to ascertain the possibility of their reaching here in a marketable condition; if so hundreds of tons could be imported. At the time Mr. Berry was there the wholesale price was £4 per ton, or less than a halfpenny a pound for magnificent Grapes."

#### CLEMATISES IN POTS.

"How beautiful!" has been the exclamation of more than one visitor to whom I have lately been able to show a house full of Clematises in bloom. With this I could cordially agree, but it was with surprise that I heard an Orchid grower of some fame add, "Their culture in pots is not generally understood," for they are so popular and there are so many good varieties as to lead one to suppose the few and simple details of culture would have been mastered long ago. It would appear that this has not been done, and therefore Mr. Bardney's excellent notes on page 349 are calculated to do much good.

The whole of the pot plants here have been wintered for three years in an old garden frame, with earth banked up around the sides and litter thrown over the lights to exclude frost. They are repotted and retrained early in spring, when they are removed to any convenient house or pit, no fire heat being required unless very early flowers are wanted. By the end of May the flowering season of the early-blooming section is at an end, and the plants are turned out to an airy position upon a bed of coal ashes behind a north wall, where they mature their growth and remain till once more consigned to their rude but sufficiently snug winter quarters. The object of this note is to show how admirably Clematises in pots are adapted to the amateur and gardener of very limited means.—EDWARD LUCKHURST.

#### ODDS AND ENDS.

**The Fruit Prospects.**—The prospect of a fruitful year is generally good. In the south-east of England there is a fine show of fruit. Gooseberries could not be more abundant; Black and Red Currants are well set; Plums and Cherries are already swelling, the former being a particularly good crop; early Pears are swelling fast and well-set, late varieties are full of bloom; Apple trees are now very beautiful and give every prospect of a heavy crop. Wall fruits, too, promise well; Apricots, Peaches, and Nectarines, though general failures in several previous years, have the fruits the size of a good hazel nut and thickly set.

**Magnolia conspicua.**—One of the most beautiful flowering trees at this season of the year is *Magnolia conspicua* when clothed with its white and purple-tipped blooms, and is worthy of a place in every garden.

**Spiraea prunifolia flore-pleno.**—The long slender arching branches of this shrub are covered with bloom, and, like most of the double flowers, is very durable for decorative purposes. The double Cherry is of equal value for decoration, especially for the table, to forms designs on a red cloth. The wild variety of Cherry could not have flowered more abundantly than it has done this year. The different varieties of *Pyrus* are in full bloom, and are well worthy of a place in the pleasure ground. Hawthorn will this season make a wonderful show of bloom.

**Phlox subulata.**—This is a charming spring flower, now a dense carpet of its pretty pink and purple flowers. Beds occupied with it and Tulips dotted about a foot apart have a pretty effect.

**Primula cortusoides amœna.**—This *Primula* appears quite hardy, having withstood the past severe winter without being injured, and is now very beautiful, the flowers being borne well above the foliage. These *Primulas* deserve to be grown more generally than they are at present.—H. B.

**Annuals in California.**—A Croydon correspondent sends us the following. In California, a recent traveller states, "I passed yards upon yards of blue *Nemophila* in blossom in the cuttings of the railway, and saw acres of *Eschscholtzia*, making the fields yellow like our Charlock."

**Australian Pine Apples.**—Capt. Parry, in his "Voyage Round the World," says that they are the best out-of-door Pines he ever tasted, being superior to those cultivated at Madras, and still more superior to the Burmese and West Indian.—G., Brighton.

**Kerguelin's Cabbage.**—The only totally solitary vegetable of which we have a note is the Kerguelin's Cabbage (*Pringlea anti-scorbutica*). It grows about the cliffs of Kerguelin's Land and some adjoining islands far towards the South Pole. It looks like a small garden Cabbage, but often on a long trailing stalk. It is a perennial, and the flower stalks issue between the leaves from



the sides of the main stem. Mr. Moseley, who was one of the scientific staff on board the *Challenger*, says he counted twenty-eight flowering stalks of different ages on one plant in Betsy Cove at Kerguelin's Land. They appeared to belong to eight successive years.—G. J. C.

*Lomaria L'Herminieri*.—This though of moderate growth is a striking species, the young fronds being bright red, forming a good contrast with the older deep green leaves. A plant of a dozen years' growth here has a stem of 12 inches, with a head about as much through; one of *Lomaria gibba* of the same age has a stem  $2\frac{1}{2}$  feet in height and nearly 3 feet through the fronds. *L. L'Herminieri* is not readily increased, for until the plant is some age it does not afford offsets, and these when produced are from the stem, and give the plant a much finer aspect. The offsets root down the stem and require to be carefully detached. It succeeds either in a stove or greenhouse. It is seldom that a batch of plants can be obtained from spores. *L. discolor bipinnatifida*, introduced by Messrs. Veitch from Melbourne, promises to be arborescent, a young plant of three years' growth having already a short stem, from the crown of which spring numerous light green, arching, beautifully divided fronds of 18 inches or more in length, the pinnae overlapping each other, the outer subdivisions being crisped, which give it a fine wavy appearance. It succeeds either in a stove or greenhouse temperature, and is one of the most elegant and attractive of the *Lomarias*.

*Ferns on Blocks*.—Not unfrequently the common *Polypody* (*Polypodium vulgare*) is found attached to the stems of aged and decaying trees in moist shaded situations, one aged Oak that I frequently see having a very picturesque appearance from the number of plants of this growing in the angles formed by the branches, where there is an accumulation of *débris* annually added to by the advance and decay of the *Polypods*. Stumps of hardwood trees, as Oak, implanted in ferneries and clothed with Ferns that have creeping stems and ramble up or down wherever there is a moisture-holding substance to attract them, have a much more natural appearance, as may be seen at Kew, than as seen on imitation rocks, like nothing in nature or art unless it be that of a dove-cote. Blocks of Oak in a state of decay, but with heart so as to ensure their durability, will often be found in woods, and these cut into suitable lengths should have a brass screw inserted in a suitable place to secure the copper wire to for their suspension. To the surface secure the creeping stems of such plants as *Davallia bullata*, *D. dissecta*, *D. parvula*, *D. solida*, *Nipholobolus lingua*, *N. rupestris*, and *Campyloneurum caespitosum*. The *Platy-ceriums* succeed in this way, their barren fronds soon covering the blocks. A little fibrous peat may be introduced along with the plants, which may be secured with copper wire and tacks. All that is needed is to keep the blocks constantly moist, and by reversing their position they will soon be well covered.

*Marcgravia paradoxa*.—For running over rock, up damp walls, or up stumps which are kept constantly moist, this is very interesting and ornamental, the stems clinging like Ivy to the surface of the rock; the leaves—of a deep bronzy hue with a metallic lustre—lie flat on the surface, and contrast finely with the small green leaves of *Ficus repens* and its var. *minima*. It requires a stove temperature, grows freely in any moisture-holding compost, soon covering a large surface, and is readily increased by cuttings.

*Goniophlebium subauriculatum*.—For suspending this is unrivalled; its wavy fronds from 3 to 5 or 6 feet in length have a fine effect in stoves. The baskets should be lined with moss, filled with fibrous peat, and the plant introduced at the top. It requires to be kept constantly moist. *Microlepia hirta cristata* is also a good basket Fern, and so are the *Davallias*, especially *D. Mariesii*, *D. fijiensis major*, and *D. Mooreana*, care being taken to keep the compost thoroughly moist.

*Selaginella Kraussiana aurea*.—This is a golden form of the well-known green type, and like it will grow almost anywhere, increasing very rapidly, and forms a fine golden surface where there is moisture.—G. ABBEY.

*The Gooseberry Caterpillar*.—I quite agree with "K. K." (pages 418-419) with regard to keeping the Gooseberry caterpillar under. It is a cleaner and more efficient plan to take off the perforated leaves as they appear, than to allow the caterpillars to spread over the bush and then endeavour to destroy them. I search once in two days, and in half an hour can look over forty bushes.—ALPHA.

*CAMPANULA PERSICIFOLIA ALBA FL.-PLENO*.—I see by the last number of the Journal, page 421, that the Royal Horticultural Society awarded a vote of thanks to Mr. Cannell, Swanley Nurseries, Kent, for plants and blooms of this beautiful pure white double *Campanula*. I recommended through your columns a considerable time since the extended culture of this chaste and handsome flower, and think the more as time elapses that Mr.

Cannell or others cannot do their friends or patrons a greater service than by bringing it under their notice. It is perfectly hardy, but will bloom all the earlier by having a slight protection in winter, or it may be grown in a cool greenhouse, and then in spring lifted and divided; or, if you do not want to extend your stock, apply rich mulching. In the open border its fine *Camellia*-like blooms are now expanding, and there is no finer white hardy flower for bouquets.—W. J. M., *Clonmel*.

### THE GOOSEBERRY AND CURRANT FLY.

IN reference to the article and accompanying extracts, pages 418, 419, of the Journal, I wish to remark that evidently some degree of perplexity has arisen to "K. K.," and perhaps to others, from not sufficiently distinguishing between what was written upon the true caterpillar (*A. grossulariata*) and the pseudo or fly caterpillar of *Nematus* or *Tenthredo Ribesii*, decidedly on the whole the worse to deal with.

There is little excuse for anyone being troubled with the larva of *A. grossulariata* during the spring, since a proper examination of the bushes during the autumn, and precautions taken in winter as suggested, will largely assist in keeping this species down, excepting, indeed, in those cases where persons have on adjacent property bushes that are neglected by their owners.

I am sorry to see that hellebore powder is recommended by some, as to me its use during the fruiting season appears dangerous, though it might be employed in the later months of the year. A small error has crept into the account of the Currant Clear-wing. The eggs are deposited almost invariably in the month of June, not April. And in the eighteenth line from the bottom of page 419, the words "from cocoons" should have been printed "form cocoons."—YOUR ENTOMOLOGIST.



ON Friday the 3rd inst. the ROYAL HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW commences, and will continue until Tuesday the 7th inst. In all the classes the prizes are of sufficient value to induce a spirited competition, and it is probable that the efforts the Council have made in augmenting many of the prizes will increase the number of exhibitors. The competition in the plant classes promises to be keen, the entries in the fruit classes are far more numerous than usual, while the display of garden structures, implements, &c., is expected to be the largest that has ever been seen in London. Stove and greenhouse plants are well provided for, three classes being devoted to them, in which the prizes range from £20 to £5. Similar provision is made for Orchids; while Azaleas, New Plants, Pelargoniums, Roses, Hardy Plants, Groups, and many others have classes devoted to them in which liberal prizes are offered. Sixteen classes are appropriated to fruits—for Pine Apples, Grapes, Peaches, Nectarines, Cherries, Strawberries, Melons, and Tomatoes, one being reserved for a collection of vegetables. Gold, silver, and bronze medals are offered for exhibits of garden structures, implements, and appliances; while special prizes are contributed by Mr. W. Bull for New Plants, Messrs. Sutton & Sons for collections of Peas and Melons, and Messrs. Boyd & Sons for a collection of Fruit. The Exhibition will be open to the public at one o'clock on Friday, and at ten o'clock on the three other days of the Show.

— THE fourth portion of MR. DAY'S ORCHIDS was sold by Mr. J. C. Stevens last week, and realised the total sum of £1521 10s. 6d. Some of the highest prices obtained were the following—*Angraecum sesquipedale*,  $12\frac{1}{2}$  guineas; *Dendrobium Brymerianum*, 20 gs.; *Odontoglossum vexillarium*, fine variety, 10 gs.; large plant, 17 gs.; *Masdevallia chimæra*, the true species, 13 gs.; *Aerides Schroderi*, 34 gs.; *Lælia anceps* var. *Dawsoniana*,

10½ gs.; *Lælia elegans* var. *Warneri*, 13½ gs.; *Vanda tricolor* var. *formosa*, fine specimen, 12 gs.; *Vanda Lowi*, 18 gs.; *Masdevallia Veitchiana* var. *major*, 19 gs.; *Cypripedium Stonei* var. *platytænium*, last plant in the collection, 130 gs.; *Odontoglossum nevadense*, 17 gs.; *Ada aurantiaca*, fine specimen, 9 gs.; *Aerides Lobbi*, 15 gs.; *Angræcum Chailluanum*, 9½ gs.; *Phalænopsis sumatrana*, 20 gs.; *Anguloa Ruckeri*, 12 gs.; *Phalænopsis tetraspis*, 14 gs.; *P. leucorrhoda*, 12 gs.; and *Cattleya Skinneri alba*, 52 gs. It is announced that the fifth portion of this remarkable collection will be sold on June 21st and 22nd. The amount obtained by these four sales exceeds £7000.

— A CORRESPONDENT sends us the following note on *CLEMATIS MONTANA*, the Mountain Virgin Bower, as it is sometimes commonly called, "is a climber well adapted for covering walls or trelliswork, and cannot be too highly recommended for covering bowers or summer-houses. It is a rapid-growing plant, and when allowed to ramble at will looks charming intermixed with Ivy and some of the larger-flowered varieties. It flowers early in the season; and the flowers, which are creamy white and slightly fragrant, are produced abundantly on the lower part of the young shoots. It is a native of the Himalayas, and is found growing abundantly at high elevations. It was introduced to this country nearly forty years ago, and, although having been in the country so many years, it is seldom met with grown as described above."

— AT the last meeting of the Royal Horticultural Society Mr. W. Brown of Hendon exhibited some plants of *CRASSULA JASMINEA*, which attracted much attention from visitors, but appeared to be known by few. It well deserves notice, for when in such fine condition as those referred to it is extremely valuable for conservatory decoration. The stems are slender, reaching the height of a foot or more, bearing narrow elliptical dark green leaves, and terminating in a cluster of from two to five flowers; these are about 1½ inch long, tubular in form, somewhat suggestive of *Jasmines*, pure white and pleasantly fragrant. The plants are grown in 48-size pots by Mr. Brown, and when neatly tied in the way of market *Mignonette* close heads of flowers are formed a foot or more in diameter. It is surprising that the plant is so little known, for it was introduced from the Cape of Good Hope early in the present century, and figured in the "Botanical Magazine." It was originally raised from seeds received by Mr. Anderson of Chelsea, and named by Haworth *Crassula jasminiflora*, subsequently altered to the one it now bears. It is referred by some authors to the genus *Kalosanthus*.

— IN the herbaceous department at Kew *CYTISUS SUPINUS* is now very attractive; it flowers freely from the previous year's growth, the long arching racemes of bright yellow blossoms being extremely handsome; the foliage has a peculiar downy appearance. The plant under notice is about 4 or 5 feet through and the same in height. It is apparently a free-growing plant, and altogether worthy of a place in any shrubbery border. It has withstood the severity of the past winter without any protection.

— WE are sorry to see the beautiful specimen of *VERONICA TRAVERSII* that grew adjacent to the above-mentioned plant at Kew has been cut down to the ground by the severe frosts of the past winter. It has withstood the frosts of 1878-1879 with impunity without any protection, but two such severe winters as the past in succession has proved fatal to many valuable trees and shrubs. It is to be regretted that this remarkably handsome *Veronica* will not stand our wet cold winters.

— MR. G. MITCHAM, The Gardens, Montpelier, London, N. sends some very fine sprays of *POLYGONATUM MULTIFLORUM*, which he says have been very much admired, as "grown in a garden surrounded with dwellings." We can quite understand

that such examples should be admired, and they show how well Solomon's Seal is adapted for town gardens. It is also very elegant as forced in pots for conservatory decoration.

— ON July the 9th an EXHIBITION OF ROSES will be held at the BRIGHTON AQUARIUM. Three classes are devoted to amateurs, but the majority are open to all competitors. The principal classes are for forty-eight varieties, three trusses of each, three prizes being offered value £5, £3, and £2. For twenty-four varieties, three trusses of each, £3, £2, and £1. A class is also provided for a group of plants to be arranged in a space of 150 square feet. The Sussex Rose-growers will have a good opportunity of trying their powers in a new field.

— VICK'S American Magazine has the following upon a CALIFORNIA RADISH—"N. H. Stedger of Sidney Kansas writes, 'In seven weeks' time last year I grew a good solid California Mammoth Radish that weighed 8½ lbs. It was also of excellent quality.'" Can growth in the electric light excel this?

— A DERBY correspondent, "C. C.," sends us the following relative to SWEET NANCY—"In this district there is no question of calling London Pride Sweet Nancy. The flower so called, whether single or double, is a *Narcissus*. The single is white, with yellowish tinge and yellow centre, and in one field is supposed to be wild, but probably it was once a cottage garden. The petals are much richer than the *Narcissus poeticus*, and the white less pure than in the garden *Narcissus*, with red and yellow centre. The double white I one day commented on to an old woman in a cottage as *Narcissus*, and her remark was, 'We call them Sweet Nancies.' Certainly the flower seems more like a Sweet Nancy than London Pride, having more individuality."

— A CORRESPONDENT, Mr. W. Morris, desires to know where he can obtain a supply of GLAZED FLOWER POTS, and the price per cast. We are unable to state where such pots are manufactured, as we do not remember to have seen them advertised. We have seen glazed pots in use, and the plants that were growing in them were in the best possible condition.

— THAT excellent variety of STRAWBERRY, PRESIDENT, is rarely exhibited in better condition than it was shown by Mr. Mortimer, gardener to Major Storer, Purley Park, at the last Reading Show. The fruits were all very even, of good size, fine conical form, and richly coloured, attracting the admiration alike of horticultural connoisseurs and the general visitors. The extreme difference, however, which cultural attention will effect in the same variety was indicated by the varying quality of the other dishes shown of President on the same occasion, for not only was there such a great diversity in form as to render some scarcely recognisable, but there was also considerable divergence in all other respects. This Strawberry seems to be a great favourite in the Reading district.

— AMONG the exhibits at the Crystal Palace on Saturday last the group of TREE MIGNONETTE from Mr. Bird, gardener to J. A. Causton, Esq., Lodgemore, West Dulwich, was especially noteworthy. The specimens were about 4 feet in height, some trained as pyramids and others with umbrella-shaped heads about 2½ feet in diameter, and a clean stem of similar height. The pyramids were even and neatly trained, the flowers being abundant and the foliage healthy. Pots 8 inches in diameter are employed, and with ordinary light soil, and the satisfactory result obtained is very creditable to the cultural skill of Mr. Bird.

— IN the pleasure grounds at Kew there is now a fine display of HYBRID AZALEAS AND RHODODENDRONS. Among the former many of the older varieties are represented, some very beautiful and unrivalled in brilliancy or diversity of tints. The Rhododendrons are chiefly confined to banks on each side of a walk extending from the ferry gate to the Sion House vista—a

portion of the gardens that is comparatively little known to visitors. Some of the finest varieties now represented are Broughtoni, catawbiense coelestinum, pulcherrimum, John Waterer, Blandyanum, Empress Eugénie, Johnsoni, Chancellor, Victoria, Macranthum, and Purpureum splendens.

— A CORRESPONDENT sends us some flowers of CHEIRANTHUS ALPINUS, and deservedly recommends it as "a hardy plant that well merits attention. It is very dwarf and compact in habit; the flowers are produced so freely, and the colour is such a pleasing shade of bright yellow, that it is invariably admired by all visitors to my garden. In addition to those characters it possesses a most agreeable and delicate fragrance, which is quite sufficient to insure its being appreciated either when growing or in a cut state. I find it well adapted for the rockery or as a marginal line to mixed borders."

— THE following GARDENING APPOINTMENTS have been recently made:—Mr. N. Coppin, late foreman at Campsall Hall, Doncaster, has been appointed gardener to Alfred G. Lucas, Esq., Cave Castle, South Cave, Yorks; Mr. John Gardner, late foreman at Coombe Abbey, Coventry, is now gardener to Lady Pollock, Hutton, Feltham; Mr. W. Bailey, late foreman at Sandbeck Park, Rotherham, is now gardener to J. Jump, Esq., Blake Hall, Ongar; Mr. Frederiek Parsons, late foreman at Hawkestone, has been appointed gardener to Mrs. Lloyd, Widberry Hill, Ware; Mr. G. Springthorpe, late foreman at Crawley Court, Winchester, becomes gardener to G. H. Palmer, Esq., Egham; Mr. Edward Wilson, late gardener to T. Farmer Hall, Esq., Effingham House, Leatherhead, has entered the service of H. M. Pollett, Esq., Highfield, Bickley, in the same capacity; and Mr. Jas. Hobbs, late foreman at Syston Park, Grantham, becomes gardener to H. B. Samuelson, Esq., Chelston Cross, Torquay.

— A DAILY paper remarks that the energy of the French character, which has astonished the world by the efforts the people have made to retrieve the disasters of the late war, is nowhere more strikingly exhibited than in the endeavours that have been made to extirpate the PHYLLOXERA. In eleven departments syndicates were formed among the Vine-growers to the number of five hundred, and by this means a joint effort was able to be made. They devoted themselves, aided by the Government, to a close inspection of all the vineyards supposed, or likely, to be affected with the Phylloxera. Sometimes remedies were applied—the sulphur treatment, and the immersion of the vineyards, so as to drown the insect pests. But the most thorough remedy was the uprooting of the infected Vines, and to do this power was given by the Legislature to override, if necessary, the objections of the Vine-growers. The Vines were dug up and burned, while the ground was disinfected to some depth. In twelve departments 130,000 acres of Vines were thus uprooted. The expenditure of the State in this work during 1880 amounted to nearly £40,000. Yet notwithstanding the devastations of the Phylloxera, the area planted with Vines is much larger now than it was before the calamity came upon them. Thus, in the Gironde, where there were 375,000 acres of vineyards, there are now 430,000 acres. Nearly 625,000 acres have been planted since the first appearance of the Phylloxera, chiefly with new plants imported from other countries, and started in soil hitherto devoted to other crops. Evidently the French mean not to lose their position and reputation as wine-growers.

#### CRYSTAL PALACE FLOWER SHOW.

MAY 28TH.

EXHIBITS were not very numerous at the first Sydenham flower show of the season, and, though several good collections of plants were staged, they were mostly similar to those exhibited at the Royal Botanic Society's Gardens on the preceding Wednesday. In few classes was there any approach to keen competition, and in some

there was but one entry, several prizes being in consequence unawarded. The most attractive portion of the Exhibition was in the centre transept, where the groups of fine-foliage and miscellaneous plants were chiefly arranged. Immediately in front of the theatre a fine bank of Clematises was notable, occupying the place of the handsome Roses in pots which Slough and Cheshunt have usually supplied on previous occasions. On each side of these were groups of Calceolarias and choice plants from Holloway; the richly coloured Crotons, handsome Palms, Tree Ferns, and other fine-foliage plants being arranged on the side stages, at the corners of which were the groups in competition. The other exhibits occupied a sloping stage in the centre of the north nave.

*Stove and Greenhouse Plants.*—In the nurserymen's class for nine specimens there were two competitors; Messrs. Peed & Son, Lower Streatham, securing the chief position with healthy well-grown plants, and Messrs. J. Peed & Son, Roupell Park, following closely with similar specimens. The most successful in the amateurs' class was Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, who staged even and handsome specimens, Acrophylum venosum, Drocophyllum gracile, and Erica Cavendishiana being especially notable for their fine condition. Mr. B. Peed, gardener to Mrs. Tredwell, St. John's Lodge, Lower Norwood, and Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, taking the second and third positions with neat examples of the ordinary plants staged in such classes.

*Azaleas.*—These were rather abundantly represented, and the majority of the specimens were in satisfactory condition as to training and floriferousness. The best nurserymen's nine were from Mr. C. Turner of Slough, all flowering well and meriting the honour accorded for them. Messrs. B. Peed & Son secured the second prize. Among the amateur exhibitors of the same number Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, was a good first with handsome specimens; Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham Hill—the only other exhibitor in the class—being placed second with good pyramidal plants. In several other classes Messrs. Turner, Ratty, and B. Peed were the chief prizetakers.

*Orchids.*—There was a fair display of these plants, and the competition among the amateurs was rather spirited. In the nurserymen's class for nine specimens Mr. B. S. Williams was easily first, his collection including several of the handsome specimens previously shown at the Royal Botanic Society's Exhibition and noted in our report. Mr. Henry James, Castle Nursery, Norwood, was adjudged the second position for vigorous plants of Dendrobium nobile, D. thyrsiflorum, and Odontoglossum citrosum among others. In the amateurs' class Mr. Child staged a fine collection, for which he was awarded the premier honours; it included a handsome Vanda suavis with nine spikes of flowers, Cypripedium barbatum superbum, good, Aerides Fieldingi, and Oncidium ampliatum majus, also flowering freely. Mr. Salter, gardener to J. Southgate, Esq., Leigham Court Road, Streatham, was second, contributing fine examples of Dendrobium Dalhousianum, Oncidium concolor, and Phalaenopsis grandiflora. Mr. A. G. Catt, gardener to Walter Cobb, Esq., Silverdale Lodge, Sydenham, secured the third position with smaller but healthy plants.

*Fine-foliage Plants.*—Mr. B. S. Williams was the chief exhibitor in the nurserymen's class for nine fine-foliaged plants, and the only one in that for the same number of Ferns, securing the leading prize in both with some of the handsome specimens for which the Holloway nursery is noted. Messrs. Hooper & Co., Covent Garden, and Mr. H. James followed in the first-named class, each staging fine plants, the former especially, Palms being particularly well represented. In the corresponding amateurs' class there were only two competitors—namely, Mr. Rann and Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington, who were awarded the first and second prizes in that order, the collections being very close in merit. Mr. Rann as usual carried off the chief prize for Crotons with well-grown plants bearing brightly coloured foliage. Mr. Bird, gardener to J. A. Caus-ton, Esq., Lodgemore, Alleyn Park, Dulwich, was a good second with smaller but admirably coloured plants, Mr. Penfold taking the third position. The prizes for Dracænas were awarded in precisely the same order for fresh healthy examples of good varieties. The only collection of nine Ferns was from Mr. Penfold, well-grown neat specimens, well deserving the first prize awarded for them.

Tuberous Begonias were as usual shown by Messrs. Laing & Co. of Forest Hill in excellent condition, securing the premier prize in the class devoted to them. The varieties especially noteworthy were The Hon. Mrs. Brassey, bright scarlet, large; Devonensis and Exoniensis, both good varieties, fine scarlet tint; Annie Laing, bright pink, neat flower; Lady Hume Campbell, pink, a beautiful variety; and Pollie, pale yellow. Mr. H. Coppin, Croydon, was a good second, showing several fine varieties, the best being Roi d'Or, large yellow, and Olympus, bright scarlet. Calceolarias were well represented by Messrs. Dobson & Son of Isleworth, Mr. Bird, and Mr. W. Griffin, gardener to J. Willcocks, Esq., Forest Hill. Pelargoniums were poorly shown, the only really good collection being that from Mr. C. Turner, comprising fancy varieties, which was first in that class.

*Groups.*—Four exhibitors appeared in the class for a group to occupy a space not exceeding 200 square feet. The one for which the premier prize was adjudged was staged by Messrs. John Peed and Son, and consisted chiefly of variegated Maples, standard and pyramidal Azaleas, Calceolarias, Coleuses, Palms, and Dracænas, tastefully arranged, formality being studiously avoided. Mr. J.



Salter was placed second with a valuable collection of plants, comprising many handsome Orchids and other choice plants, but there were scarcely enough foliage plants to tone the brightness. Messrs. J. Laing & Co. were third with a group chiefly composed of similar plants to those in the first-prize collection, arranged in a somewhat similar manner.

*Miscellaneous.*—Several collections of flowers and plants were contributed besides those in the classes, extra prizes being awarded to the following:—Mr. B. S. Williams for a handsome group of choice plants, including specimens of many new plants for which certificates

were awarded; Messrs. Jackman & Son, Woking, for a fine group of Clematises in pots already referred to; Mr. W. Rumsey, Waltham Cross, for four boxes of Rose blooms; Mr. H. Hooper, Bath for a collection of Pansy, Pyrethrum, and Pæony blooms; Mr. Bird for a group of well-grown standard Mignonette and Calceolarias; and to J. Willcocks, Esq., of Forest Hill, for a group of Calceolarias. Messrs. James Carter & Co., High Holborn, also contributed specimens of their Queen's Prize Mimulus, showing a great variety of rich colours.

Certificates were awarded for the following plants—

*Pelargonium Martial* (Turner).—A show variety, which was, we



Fig. 103.—RUBUS DELICIOSUS.

believe, originally raised by Mr. Bréhaut, of Jersey. The flower is of good size, substance, and excellent form. The lower petals are rounded and very bright scarlet, the upper petals being dark maroon. The truss is large, and the peculiar richness of colour in the flower renders it very striking.

*Pelargonium Mr. Henry Cox* (Turner).—A beautiful tricolor variety, with zones of colour bright and distinctly marked. This fine variety has also been certificated at several other exhibitions.

*Begonia Mrs. Robert Whyte* (Laing).—One of the tuberous section of Begonias; flower large, the petals very broad and finely rounded; colour bright pink. An extremely beautiful variety, of compact habit and very floriferous.

*Begonia Davisii flore-pleno superba* (Laing).—This handsome double

tuberous Begonia has already been referred to on several occasions, and it well maintains the good opinion formed of it when first exhibited.

Mr. B. S. Williams was accorded certificates for the following, which have been previously described—*Actiniopteris radiata australis*, *Philodendron elegans*, *Heliconia nigra punctata*, *Asplenium apicidens*, and *Odontoglossum Alexandræ* var. *giganteum*.

#### RUBUS DELICIOSUS.

ONE of the most beautiful hardy flowering shrubs is this species of *Rubus*, for which Messrs. C. Lee & Son of Hammersmith received a first-class certificate at the last meeting of the Royal

Horticultural Society. It has been long known to botanists, but has only been in cultivation about ten years, though it was originally discovered in the Rocky Mountains as early as 1822. Visitors to the Royal Gardens, Kew, have, however, for some time been annually attracted by a specimen in the herbaceous ground, where it flowers most profusely in a sheltered position near a wall. A plant is also included in the Royal Botanic Society's Garden, Regent's Park, and it is now represented in several other large public collections.

The flowers are individually of short duration, but they are produced so freely that a display is maintained for a considerable time during April or May. The petals are pure white, large, rounded and spreading, the flowers frequently exceeding 2 inches in diameter. The fruit resembles a large Blackberry, and possesses a pleasant flavour when fully ripe. This *Rubus* usually attains a height of 3 or 4 feet, at least we have not seen any exceed the latter. It is compact in habit, with rather small neatly cut leaves, and the disposition of the flowers on the young shoots imparts a very graceful appearance to the shrub when it is in good condition. The accompanying engraving faithfully represents flowering sprays from a plant grown by Messrs. C. Lee and Son at Hounslow.

#### SAWDUST FOR RHODODENDRONS.

WHEN I was at Mentone, about six weeks since, Dr. Bennet showed me some Rhododendrons, as a curiosity, growing in his garden in the Maritime Alps. He informed me that the peat in which they were growing had cost him £20 to obtain by rail from, I think he said, Milan. I gave him the description of the Rhododendrons in the garden of the late Mr. Cuthbert Johnson at Croydon, growing entirely in sawdust. It must have been fifteen or sixteen years since I first saw this experiment. The Rhododendrons were then growing luxuriantly in a large bed of pure sawdust. As I was interested in this mode I again called ten years afterwards, and Mr. Johnson again showed me the result. He said, "You see on the right that large bed of Rhododendrons with leaves growing with great vigour, but there is not a single flower; on the left you see the plants covered with flowers, and of a large size. Those on the right are growing in oak sawdust; those on the left in deal sawdust." If I am not right I must be corrected by the Editor of this Journal, who is well acquainted with these experiments. Turpentine might probably be so prepared as to prove a valuable manure in the formation of the flowers of many plants. Dr. Bennet said he should immediately profit by my information, as there was an abundance of deal sawdust in Mentone.—PHILODENDRON.



#### KITCHEN GARDEN.

THE latest sowing of main and late crop Peas must not longer be delayed, any sown after this should be early varieties. The weather recently has been so dry as to necessitate watering and mulching rows of early Peas. The latter prevents evaporation and heavy soil from cracking. If Broad Beans are required very late a sowing may be made of the Longpod varieties, Monarch being suitable. If requisite another sowing of Runner Beans should be made. Make another sowing of Dwarf Kidney or French Beans, giving preference to such varieties as Canadian Wonder, Liver-coloured, and the Negro-Longpod. Root crops, indeed all crops, are much later than usual, but attention must be given to thinning before the plants become large and crowded. Button Onions are generally wanted in large quantities; the thinnings of Onions replanted thickly into drills will give the requisite supply of such without interfering with the supply of spring Onions. In thinning Carrots many more should be left than will ultimately be required, so as to allow of every alternate one being drawn in a young state. Parsnips should be finally thinned to 9 inches or 12 inches apart; Chicory and Beet to a similar distance. Salsafy and Scorzonera may be left 6 inches asunder, and Leeks in beds the same distance, every alternate one being drawn in a young state for soups. Early-sown Leeks which are large enough for planting may, where they are wanted of a

large size, be placed in trenches prepared as for Celery, and be well supplied with water and liquid manure in dry weather. Celery plants in an advanced state should be placed in trenches, single rows being preferable, except for the early crops. In the preparation of the trenches a plentiful supply of decayed manure is requisite, which should be dug-in when moist. Late-sown plants can be pricked off in prepared beds of rich compost, shaded until established, and well supplied with water. Advanced crops of Cauliflowers, Brussels Sprouts, and Savoys may be planted out as ground becomes vacant. See that there is not any neglect in sowing Spinach, Radishes, Lettuce, and Turnips, also make frequent sowings of Mustard and Cress. Tender herbs such as Sweet Basil, Sweet Marjoram, Summer Savory if gradually prepared may be planted on warm borders, and Capsicums in a row about a foot from the base of a south wall. Vegetable Marrows require a sheltered position fully exposed to the sun, where plentiful supplies of water can readily be given in dry weather. If handglasses can be afforded for a short period it will be an advantage. Ridge and Gherkin Cucumbers should have similar treatment. At all seasonable times keep the surface soil well stirred about all growing crops. Well ventilate frames containing late crops of French Beans.

*Tomatoes.*—Plants of these that have been well hardened off may be planted against walls. Take out the soil and fill up with a compost of two parts strong loam and one part decomposed manure, mulching with 2 or 3 inches thickness of the latter, and well supply the plants with water. Train with one stem and remove all laterals. In a favourable season Tomatoes do fairly well in the open in rows 3 feet apart, and the plants about 30 inches asunder, securing the growths as they advance to stakes about 3 feet above ground. In the southern and midland counties the earliest fruits ripen moderately well, and the small fruits are cut in autumn and ripened in glass structures. The fruit under such conditions does not attain the colour and flavour of that ripened under more favourable conditions. The chief supply should whenever practicable be obtained under glass, yet that grown outdoors is found a useful auxiliary.

#### FRUIT HOUSES.

*Vines.*—Thinning late Grapes should not be delayed, as they swell so rapidly at this season that they soon become too large to be thinned expeditiously. Those Vines that were not started early will only now be in flower and must have every attention. Varieties that do not set their fruit well, such as Lady Downe's, West's St. Peter's, &c., should have a constant circulation of dry warm air, and a temperature of 80° to 85° by day, and 70° at night. When watering is necessary let it be done thoroughly. To crops in the process of swelling off a little guano sprinkled over the surface of the border previous to watering will be beneficial, and a mulching of short manure after a good watering will help to keep the border moist and lessen the necessity for its repetition. Maintain a sweet atmosphere in all houses where fruit is swelling; and although fires cannot be dispensed with at night, much may be done to economise fuel by closing the house early with plenty of moisture on fine afternoons. Where Grapes are ripening a constant circulation of air must be secured, otherwise good colour and finish can hardly be expected. Early Vines which have been cleared of fruit should be copiously syringed with tepid water to cleanse the foliage of dust and red spider; and if the foliage is good keep the laterals in check by pinching, but if the Vines are weak allow a moderate extension. Do not neglect the borders, but keep them moist and mulched so as to secure the proper development of the fruiting buds for next season. Muscats completing the stoning process must be watched in bright weather, and if scalding of the berries commences admit air abundantly for a fortnight, when all danger will be past. In houses where the Grapes are ripe keep the Vines free from lateral growths, and the atmosphere as cool and as dry as is consistent with the maintenance of the foliage in good condition. Vines in pots should have the leading shoots stopped when about 8 feet long, and have the laterals and sub-laterals pinched at one joint as produced, especially those intended for fruiting next season.

*Cucumbers.*—This may be said to be the height of the season alike for a good supply of fruit and for red spider with other insect pests.



Bountiful supplies of liquid manure will be required about twice a week, and atmospheric moisture must be provided freely, especially in hot weather. Shading should not be resorted to more than is necessary to prevent flagging. Training, stopping, and thinning out the foliage and exhausted growths must be regularly attended to. Do not overcrop nor allow the fruit to hang too long, for nothing, except seeding, has such a weakening effect on the plants. If seed be wanted the present is a good time to fertilise some of the flowers, selecting the most promising. Utilise pits and frames directly they become cleared, observing the conditions previously advised. Fumigate moderately directly green fly appears. Keep the evaporation troughs charged with guano water, and sprinkle available surfaces with the same at closing time.

**Melons.**—Afford support to fruits which are becoming heavy. Keep a vigilant watch for cracked fruits, cutting the stems about three parts through below the fruit. For canker rub quicklime into the affected parts. Fertilise the pistillate blossoms on successional plants every day, maintaining a drier atmosphere and somewhat higher temperature till the fruits begin swelling, and be careful not to allow one or two fruits to take the lead of the others. Earth up, using good loam, pressing it down well, directly the fruits begin swelling, having previously soaked the soil with tepid water. Afford tepid liquid manure to plants bearing fruits, syringing moderately on fine afternoons. In pits and frames let the fruits in a forward state be well exposed to the sun. Sow as occasion requires for succession.

#### GREENHOUSE.

Examine Pelargoniums not yet in flower, for if aphides are allowed to remain fumigation will be necessary after the flowers are expanded, which will cause them to fall in quantity. Assist plants that are flowering, with liquid manure. Fuchsias also should be well supplied with water and be syringed every afternoon, so as to keep down red spider. Primulas intended for autumn flowering should be potted off singly, returned to gentle heat until established, and then be transferred to cold frames, ventilating freely and shading from bright sun. Transfer the plants into larger pots as required, and remove all trusses of bloom until September. Cinerarias for autumn flowering should have similar treatment. Chrysanthemums should now receive their final potting; good turfy loam with a sprinkling of sand suiting them well, employing crushed bones in lieu of crocks for drainage. Stand the pots on ashes in a sheltered situation, yet having plenty of sun, and after the roots have taken possession of the fresh compost liquid manure may be given.

**Heaths.**—Remove the decayed flowers from these plants. More water will be required shortly than at any other time, the safest plan being to examine the stock morning and evening and afford supplies of water to such as are in need. Any plants of *Erica Austiniana*, *E. Irbyana*, *E. Marnockiana*, *E. Jacksoni*, and *E. retorta* major required for August and September flowering should now be attended to, placing them in a house with a north aspect, where they can be well exposed to light.

**Camellias.**—Those that flowered early and were at once placed in heat will by this time have set their flower buds. The buds in some cases having attained a considerable size, the plants should be removed when the buds are the size of large Peas to a house with a north aspect. If the buds swell here too rapidly they may be placed behind a north wall with a temporary covering of loose lights. Camellias ought not, if it can be helped, be placed out fully exposed; for although they require plentiful supplies of water during growth, they become so soaked by heavy rains when in the open air after their growth is completed as to cause the loss of the roots, also causing the buds to fall later on. Plants that flowered late will, if the pots are filled with roots, be benefited by the application of clear liquid manure until the buds are set.

**Azaleas.**—Plants that flowered some time back will now be growing, and any that require more root room must now be repotted, but it is not advisable to shift them before some growth has been made, as they do not root freely. Employ good fibrous peat with enough sand to keep the soil open, and make the fresh soil as firm as the old ball; shade for a few days after potting, keeping the house close and moist.

Hardwooded plants as they cease flowering must immediately have the seed pods removed, as nothing taxes the energies of the plant so much as the formation of seed. *Eriostemons*, *Epacris*, *Acrophyllums*, and similar plants are much injured if this be neglected. Syringe freely to cleanse the plants. *Cytisuses*, *Acacias*, &c., should be cut back to keep them in form, and any others that are becoming straggling should be cut in as soon as the flowering is over. Syringing in the afternoon will be necessary to keep down red spider.

#### FLOWER GARDEN.

The favourable change in the weather has given an impetus to bedding-out, which is often done in too much haste, the plants, from the cold state of the soil, not progressing for some time after planting. Nothing is gained by being in too great a hurry, for unless the weather is genial and the plants well prepared by hardening off they are greatly checked. *Calceolarias*, *Verbenas*, *Pyrethrums*, *Echeverias*, *Gnaphaliums*, *Petunias*, and the hardier *Pelargoniums* may be planted out ten days or a fortnight in advance of *Coleuses*, *Iresines*, *Alternantheras*, *Tricolor Pelargoniums*, and subtropical plants, which should not be planted until the early part of June; but to facilitate the work all arrangements should be completed at once. In the absence of rain plenty of water should be given to settle the soil about the roots. *Asters*, *Stocks*, *Zinnias*, *Phlox Drummondii*, *Scabious*, *Marigolds*, and other half-hardy annuals should now be planted out, selecting if possible a dull day for the operation, and dust well with quicklime or soot. Hardy annuals should be thinned when they are large enough, allowing space for the development of the plants. For a late display of bloom make another sowing of these. *Roses* are not growing freely, and are becoming infested with aphides and the leaf-rolling caterpillars. Remove the latter by hand, and to destroy the aphides wash well with tobacco water. Climbing and other *Roses* against walls should in dry weather have copious supplies of water or liquid manure.



#### SECURING STRAY OR WILD COLONIES OF BEES.

A REQUEST from a correspondent for advice relative to the best means of capturing a nest of bees which has for some years lived, swarmed, and thriven in a roof, induces me to give a short account of a couple of expeditions in which I have taken part, and which had for their object the restoration to civilised courses of bees that had hoped to free themselves from the trammels of bar-frames, the dull uniformity of foundation combs, and the innovation of section boxes by hiding away to the seclusion of a double brick wall in one case and the height of a church roof in the other. The story of how combs, workers, and queen were charmed into the hive will answer our correspondent, and make clear the simple device by which colonies in inconvenient places may be dislodged and made to enrich the apiaries of their captors.

The double wall formed part of an old structure, and through an aperture, the result of decay, the swarm had evidently entered, and had utilised, as we afterwards found, an interspace only  $4\frac{1}{2}$  inches wide from front to back. A bricklayer was employed to cut out the front bricks, to lay the colony open to view, and this work acted like the hive-beating in driving, completely quieting the bees, which made no resistance to the removal of their comb. The bricklayer was not a bee-keeper, and so it soon became expedient to remove the bricks myself, lifting out the honeycombs as it was possible to free them. These I found about 3 feet 6 inches deep, and supported at intervals by cross bricks, but unfortunately as we came upon the brood combs the queen with the greater number of bees retreated into the recess beyond reach. All the brood combs by cutting, trimming, and fixing into frames were made ready for the hive, but the inhabitants, except the very young, flew from them and returned to the wall. The queen was not with us, while nearly all the bees were with her, and quite inaccessible, unless so much of the wall was to be removed as to endanger its safety. In this dilemma we fixed the frames with their brood combs as nearly as possible in true position, and in the spot the brood had previously occupied, nailing up over all a large gardener's mat.

So soon as quietude was restored the bees with their queen



returned to feed and warm their young. The next morning the mat was lifted with as little disturbance as possible. The insects were discovered closely clustered, putting their plundered house in order. The hive to receive them stood against the wall just under their old entrance. Frame after frame was lifted down, the queen in due course making her descent with the rest. The few bees that took wing soon learnt the position of their comrades, and the colony was established in its new quarters with but very little loss, and yielded its owner a fine super at the close of the summer. The main point of interest rests in the manner of capturing the queen by restoring for a time the combs, to which she will infallibly return, when their second removal is too rapidly and quietly accomplished to give her an opportunity of eluding us.

But to our second case. The three or four colonies in the roof of Much Hadam Church, the descendants doubtless of one, had behaved so badly that further forbearance was impossible. A swarm was sent out on the morning of a confirmation, and, audaciously entering the church window, clustered on an ornament not far from the pulpit, and one reckless bee from this cluster committed the sad indiscretion of stinging a bishop. This sealed their doom, and not long after ladders were raised, and your humble servant was peering down between the slates as the saucy insects were travelling in and out through four or five openings. The master builder in attendance came to give directions, but a gust of wind, common at such altitudes, nearly carried away his hat. His rapid movements in preventing this catastrophe produced a worse, for five or six bees, which regarded this quickness as a menace, took aim at his uncovered scalp and caused him to retire discomfited. A practical breach was soon made, and then painful after painful of honeycomb, which at length fairly filled a large saucer bath, was the first instalment of the booty. The brood combs followed; but as before, the bees retired and had to be gained by the expedient previously explained. While the queen and retinue were returning to their old quarters, so as to make their final dislodgment easy, the extractor was set to work upon the comb honey, and soon 60 lbs. of splendid honey was freed from wax and pollen. After the final removal of the bees the following morning, the hollow in which this colony had existed for several years was, by my order, filled with coke previously saturated in carbolic acid. This last substance emits an odour so disgusting to the genus *Apis*, that no fresh swarm is likely to choose this spot as a dwelling place. The other families, now the way had been shown, fared no better than the others, and a volunteer clad in armour for the occasion at a point where more climbing ability than I possessed was required, attacked, defeated, and captured a colony without receiving damage, while his clothing grew so sweet and sticky that now a few of the enemy became attached to him. —FRANK R. CHESHIRE, *Avenue House, Acton, W.*

#### QUEEN REARING FROM NUCLEI.

ACCORDING to instructions in your calendar for May, on the 14th inst. I took two combs out of my best stock containing eggs and larvæ, and put them into a snug hive on a new stand. I put two other combs with honey and hatching bees, and shook more bees as well to keep thoroughly warm. In two days I looked in, but no queen cells were begun. In two more days (17th my diary says) nucleus all right, but no queen cells begun. Thinking the eggs were too old, I gave another frame of very small eggs on the 19th, still no queen cells. I then gave a comb with one queen cell from another hive, which I did not want to swarm. On the 20th I found two small queen cells begun on the comb given on the 17th. On the 25th I put in two large queen cells from a third hive. These I have not since examined; but, to make a long story short, I cannot make out why this nucleus did not do as yours do, and build queen cells right off. —W. P. EDWARDS.

[You have misunderstood our instructions. We do not make nuclei in order that the bees in the nuclei may raise our queen cells, but in order that they may receive and hatch queen cells built in a strong stock in some way made queenless. Our words are these, "We select our best colony, the bees of which present the characteristics we most value, and remove its queen in some manner that does not seriously thin the population, in order that it may produce a number of highly nourished young queens." We then fully explain how the nuclei may be made "the day before the queen cells are ready for excision." The nucleus in your case acted naturally enough, for it required time to ascertain its orphan condition, but no doubt the queen cells were already in progress before you noticed them. Had the little lot of bees possessed newly laid eggs at the time you separated them from the main body they might have delayed moving in the matter of queen-rearing to the seventh day at least, and yet have produced

from their youngest grubs fairly good queens. It is the habit of weak lots to delay in this matter, and to produce but very few royal cells. The stock referred to in the calendar furnished us with twenty at least, and some of the queens raised therefrom mated in the bright sunshine of Saturday last. The smallness of the queen cells referred to might have been actual, although queen cells do not show their size until sealed. The best queens are undoubtedly raised amidst a thronging host of workers, and not amongst the starvelings of a nucleus, although there may be abundantly sufficient to brood the sealed cell and give a home to the young queen until a more worthy throne is vacant to receive her.]

BRITISH BEE-KEEPERS' ASSOCIATION.—Some time ago it was stated in the newspapers that there would be an exhibition of bees, &c., in connection with the Royal Show at Derby in July next. Will you kindly inform me through the Journal, 1, Has any prize list for bees yet been issued, and if so where can I obtain one? 2, What date the entries close for honey, &c.? If they wish, as they state, all concerned to compete, why is it not better advertised? —C. Z. H.

[We have received a prize list of the Show to be held at South Kensington, but not of the Derby Exhibition. We are unable to answer your other questions. The Assistant Secretary, Mr. J. Huckle, King's Langley, will no doubt supply the information if you write to him.]

#### TRADE CATALOGUES RECEIVED.

George Gummow, Loughborough Road, Brixton.—*Catalogue of Bedding Plants.*

James Carter & Co., 237, High Holborn, London, and Forest Hill, Sydenham.—*Catalogue of New and Choice Plants.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (*R. J. J.*).—Some works on bulb culture have been written by Mr. D. T. Fish, which would probably suit you. You can obtain particulars as to price, &c., either from the author at Hardwicke Hall, Bury St. Edmunds, or the publisher, 170, Strand, London. Your second question is too indefinite. Some books are very costly, others very cheap; some refer to stove plants, Orchids, &c., others to hardy flowers. If you will state your wants more fully and clearly we will endeavour to aid you.

Intermediate Stock (*G. Mitcham*).—The plant you have sent represents a very good variety, being dwarf and sturdy in habit with large double flowers of rich colour. Although we have seen Stocks quite equal to it, and occasionally deeper in colour, yet you are quite justified in endeavouring to keep the strain distinct, as it is superior to the ordinary forms of Stocks that we often see flowering at this season of the year. Your Solomon's Seal is noticed on another page.

Rocamboles (*Gardener*).—*Allium Scorodoprasum* is the Rocambole of the botanists, and the plant is a native of Denmark, but now naturalised in this country. The Tree Onion, *Allium Cepa bulbiferum*, is commonly known as the Rocambole of gardens; the bulbs grow in a cluster on the top of the stems, and are used the same as Shallots. The Potato Onion is *Allium Cepa aggregatum*, the bulbs forming in clusters partly in the ground and partly above it. We have grown both the Tree and Potato Onion, the culture being the same as required by Shallots and Garlic.

Zonal Pelargonium (*J. W. M.*).—Every petal had fallen from the truss of the Zonal Pelargonium, as they usually do when the flowers are not gummed. Varieties of florists' flowers are far too numerous and too nearly alike to permit us to undertake the naming of examples that are submitted to us; still we readily give the names of any flowers that we can recognise. From what you say of your variety we do not think it improbable that it is an unnamed seedling.

Insects on Peach Tree (*Alpha*).—The variety you name is not more liable to be attacked with insects than other Peaches and Nectarines are. Your trees and wall require a thorough cleansing during the winter, and then timely measures should be taken for preventing the insects appearing in the spring. When once they are established they are difficult to destroy. Nicotine

soap is a good remedy, but the insects are not easy to reach when closely enveloped in the curled leaves.

**Greenhouse Plants** (*Kittie*).—As a rule plants thrive much better during summer on a slate or other stage covered with cocoa-nut fibre refuse than on open latticework. If the fibre is kept moist in hot weather it is of great advantage to all the plants you name. During winter it may be necessary to place the Pelargoniums and Coleuses on inverted pots, and the fibre should not be so moist at that time as in summer.

**Camellias and Azaleas** (*Old Subscriber*).—The temperature of a vinery is precisely suitable at this period of the year for the plants after they have ceased flowering, and the shade of the Vines is beneficial to them. They should be syringed regularly twice a day, and the atmosphere be kept in a genial condition. Your views on the management of the plants are quite right; heat, moisture, and moderate shade are essential for promoting healthy growth.

**Gishurstine** (*W. T.*).—As you will see from an advertisement in the front page of this Journal this useful compound can be had from most seedsmen and oilmen. Those who do not have it in stock will doubtless procure it for you if you request them to do so.

**Striking Double Wallflowers** (*M. E. H.*).—Cuttings of young shoots inserted now in sand under a bellglass and placed in a heated frame or propagating house strike as readily as Fuchsias and Verbenas do that are treated in the same manner. If the Wallflowers have to be struck under handlights, or even in a shaded border, short stubby side shoots a little hard at the base and slipped, not cut, off the stems emit roots more readily than the more tender shoots do. Suitable slips can generally be had from the middle of June to the middle of July, according to the condition of the plants and the position where they are grown.

**Cucumbers Unhealthy** (*Mrs. Finch*).—We fear from your description that the young Cucumbers are attacked by the disease, and if so, it is almost if not quite impossible to rid them of it and render the plants healthy. We could better have answered your inquiry had you sent us a portion of the unhealthy plants. You do not state the temperature in which your plants are grown, nor the general treatment which they receive, so that it is impossible to state whether you are right or wrong on those points. The plants, however, we think are in too rich soil and cannot elaborate the abundant sap with which they are supplied.

**Woodlice** (*H. Hoskins*).—You may entrap many of them by placing a cold boiled potato in a flower pot and covering it with moss. If the woodlice are numerous they will be attracted by the bait and can then be destroyed. If several pots are employed and regularly examined every morning you may soon reduce the troublesome and destructive pest. We do not know what you mean by your question on variegated Carnations, for the flowers of nearly all of them are variegated or parti-coloured. Do you mean that the foliage is variegated?

**The Sawfly** (*Alpha*).—The name Sawfly is applied to several distinct species of insects that possess a saw-like apparatus, with which they puncture the surface of the vegetables selected as a nidus for the eggs. Referring to the Turnip and Gooscherry fly the Rev. J. G. Wood thus describes this peculiarity—"If the reader will catch either of the above-named insects, and will look at the under side of the abdomen, he will perceive a longitudinal notched ridge extending to the end of the body; then let him take a fine needle, insert its point under this ridge and raise it, when he will find by the aid of a magnifying glass that he has brought to view the singular double saw from which the insect derives its name, and which rests between two horny plates acting as a sheath. The shape of the saw varies much in different species, but they all agree in having a delicate blade, with obliquely-cut teeth, and a thickened back, which enables them to play freely in the groove which directs their progress." It may be further added that these saws are side by side, and work alternately, while some species have a secretion which accompanies the egg, and secures it in the place prepared for it.

**Literary Hash** (*G. R.*).—We have read the two articles to which you direct our attention, and there appears ground for supposing that the one that last appeared is, as you say, a "hash up" from a communication of your own that appeared in another paper. We fear there is much that passes as original now-a-days which is mere "hash," but veiled with more or less ingenuity by the cookers of articles for the public. Editors are occasionally imposed on in this respect, and they ought never to admit further communications from a writer who has been found guilty of these disreputable pilfering practices. You had better point out the circumstance to the two editors, who will be obliged to you for directing their attention to what must have escaped their notice.

**Carpet Beds** (*Inquirer*).—As you do not ask for any precise information we fail to see how we can assist you. Many designs have been published in the back numbers of the Journal, and two in recent numbers that are suitable for your beds; if the latter are too intricate you can have back numbers, price 3½d. each, containing simpler diagrams. The mode of planting is usually governed to a great extent by the plants at disposal. If you send 1s. 2d. to the publisher and ask him to send you Nos. 703, 704, 705, and 706 you will find seven plans, any of which are suitable for your oblong beds, and some of them are very easy to plant. From these you can select the designs that are best adapted to your purpose. Some designs for round beds appear in the present issue, and we can send you back numbers with other diagrams for round beds at the price above quoted if you need them. This reply will also suffice for "W. C."

**Beetle on Asparagus** (*W. H. M.*).—Your plants are attacked with the Asparagus beetle, *Crioceris asparagi*. Miss Ormerod, in one of her reports on injurious insects, states that in her garden near Isleworth she stopped what was becoming a destructive attack by syringing the plants with warm water, just hearable to the hand; this sent off the larvæ, or loosened them so as to fall to a shake; and throwing soot liberally through the damp shoots to the ground destroyed the fallen grubs. This treatment repeated once or twice in the course of the season completely saved the plants, and the soot gave a luxuriant and healthy growth.

**Strawberries not Flowering** (*Saxoring*).—If the runners that were planted early last year were taken from a fruitful stock in all probability the plants will produce flowers next year, and we should certainly give them a trial; but if they were taken from barren plants we should have doubts of the new plantation proving satisfactory. We have known plants similar to yours that eventually became productive. Remove the runners as they appear, and keep the ground free from weeds so that the sun and air have access to the crowns, and the plants will assume a fruitful character. We have known young Strawberry plants barren the first year solely through having been planted too deep, and we have also known the fruitfulness of plantations impaired by the overcrowding of the crowns, or what should have been crowns, by growth and weeds.

**Planting Tea Roses** (*J. E.*).—In all probability the best plan you can adopt will be to plant out the Roses, and they will probably do well in your rather strong soil, especially if you can place a handful or two of lighter soil round the roots to give them a start. A very sunny position should not be chosen, shade from the mid-day sun being beneficial to Tea Roses, but it must not be the shade of overhanging trees. The plants usually grow well in a border on the north side of a wall during the summer. If the position is sunny the surface of the soil should be mulched with manure, and the growths must be kept free from insects and mildew. If you will send us your name and address we will write to the gardener to whom you refer on the question you have submitted; you can also at the same time send the price of the volumes in case we may have an inquiry for them.

**Layering Carnations** (*Idem*).—Layering may be done as soon as the growths are long enough to be tongued and pegged down without breaking, their points at the same time pointing upwards. Layers are usually ready when the plants are flowering, and the short tender shoots are not suitable. When a shoot is selected for layering all the leaves should be removed from the base to where the tongue is to be made, which is usually 4 or 5 inches from the terminal point. There are two methods of making the tongue. 1, With a very thin and sharp knife commence cutting on the under side of a shoot, drawing the knife upwards through the joint above as if splitting the stem; 2, pushing a very small and sharp penknife quite through the stem above the joint where the tongue is needed, the edge of the knife being downwards, then swiftly draw the knife down and out on the under side, and a tongue is the result. These tongues must be kept open and pegged into sandy soil, which must be kept constantly moist. You had better practise on a few growths of common varieties at first, and a few of these you will probably either cut or break off, and thus you will learn how to apply the knife and use your fingers and pegs in the operation.

**Peach Leaves Scorched** (*T. S.*).—The immediate cause of the injury to the foliage is scorching, but there may possibly be a more remote cause that has led to the evil. If you carefully examine the injured leaves, which at the first glance appear as if they had been eaten by an insect, you will find first a dark discoloration, then a shrinkage of those parts where the tissue has been ruptured, and which eventually separates from the healthy portions of the leaves, and thus form holes and fissures. If the roots of the tree were healthy and active and could obtain the requisite moisture for the support of the growth, the evaporation would not have been so disproportionate with the supply of sap, and the withering would not have occurred provided there was no fault in the glass that led to scorching. As a remedy we should first shade the tree, either by sprinkling limewash on the glass or covering with tiffany, and syringe judiciously to keep the foliage fresh, then examine the roots and rectify any mistake that you may find there. The border may be too dry at the bottom, or the soil not sufficiently fertile, needing liquid manure, or the roots may have come in contact with something that has injured them. Examine also the stock of the tree, which may not be healthy, or the sap vessels may be too contracted. By some cause or other the supply of sap is insufficient, the sun extracting the moisture from the foliage faster than it is supplied by the roots. A close examination founded on these suggestions will probably lead to the discovery of the real cause of injury, and a remedy will possibly be dictated by the circumstances of the case.

**Seedling Calceolaria and Tropæolum** (*F. Squire*).—Two leaves of a Tropæolum are totally insufficient for anyone to form an estimate on either the merits of the plant or any special features that it is supposed to possess. A spray with flowers ought to have been sent. There are some varieties of Tropæolum of slender growth, but the size of the foliage depends to a very great extent on the soil and position where the plants are grown; for instance, those grown in pots nearly always have smaller foliage than others of the same variety that are grown in the rich soil of an open border. The Calceolaria flowers were completely withered, the result of packing them in dry cotton wool instead of damp moss and soft green leaves of any sort, Spinach being good for this purpose. Although we have repeatedly referred to the unsuitability of dry wadding or cotton wool for placing round flowers, we received more flowers packed in that substance than any other, and nearly all that are of a fragile nature are destroyed. Your Calceolaria we can perceive has the upper lip more developed than usual, and the flower is of good colour and densely spotted, but whether it is of good form or not it is impossible to tell from the shrivelled examples before us. We have occasionally seen flowers having the upper lip as large as the lower, but yours is not so, and we do not think it is particularly novel.

**Syringing Vines** (*J. T. S.*).—We could name several gardeners who grow excellent Grapes without syringing the Vines, and others who grow them equally well yet use the syringe daily. We have grown Grapes for a number of years without syringing, and the crops were such as satisfied us and other competent judges who saw them, both as growing on the Vines and as honoured at exhibitions. When the Vines are quite free from insects, and the atmosphere of the house is well managed, and especially if care is exercised in the simple matter of sweeping floors and stages in the house so as not to raise one particle of dust, we do not consider that syringing as a system is necessary; but we have found the advantage of giving the Vines a few thorough washings during the season by directing the syringe between the bunches, and applying the water with some force to the foliage, and also with a greater force to the glass above it, so as to fall down in a volume and wash the upper surfaces of the leaves. This we have always found beneficial; but the work needs to be done with care, as a clumsy workman might wash half the bloom from the Grapes, while a competent one would not remove a particle. Some water, too, is quite unfit for syringing purposes, and leaves a sediment on the leaves that is injurious. Again, some water that is safe is improperly applied; we mean that one man might use it with impunity to the Vines, while another would impair the value of the fruit. We know of some good gardeners who object to systematic syringing, but who reside in districts where the soil is light and sandy, and there feel obliged to syringe in consequence of the great prevalence of red spider; in other districts the same gardeners would not syringe the Vines. Without knowing the condition of your Vines and the general treatment to which they are subjected, and not being acquainted with the nature of the soil and climatal condition of your district, we are not in a position to decide the point you submit; but this we will say, that if the Vines were ours and quite clean, and red spider does not usually abound on the Kidney Beans in the garden during the summer, we should try and grow good Grapes without syringing regularly, and should expect to succeed in our object.

**Stopping Melons** (*C. C., Donegal*).—We do not know what you mean by the "crown." The term is not employed either in the article to which you refer nor in the manual you quote. There is a slight difference in the two articles, but no contradiction, and both are quite sound. There is more than one road to London, and travellers by steadily pursuing the road they choose, if it is a



right road, arrive at their destination; and if you follow strictly, or as strictly as your circumstances allow, the instructions in question, you will in due time have Melons. For the sake, however, of precision, we advise you to follow those given in the Journal of March 17th. The main shoot of a Melon plant, if it is stopped when it nearly reaches across the frame, will produce fruit-bearing laterals. The growths should be stopped at one leaf beyond the fruit, or if space is plentiful two leaves may be allowed, but one is sufficient. After a sufficient number of fruits are set all the growths should be stopped as they appear, retaining only the principal foliage, which must be kept clean and healthy, and be neither crushed, scorched, nor infested with insects. Until you secure a sufficient number of fruits permit the laterals to extend from any portions of the plants that show fruit, stopping, as we have said, one joint beyond each, continuing the pinching as the growths are produced. When the requisite number of fruits are swelling permit no laterals to extend from anywhere, but direct the whole strength of the plants to the principal foliage and fruit. This, on the point of stopping, makes the matter clear to you. Now to pruning. If you have much growth that needs removal, remove it gradually, a portion on one day and the remainder on the next and succeeding days; but the true course is to prevent overcrowding by a systematic pinching of these young shoots that are not wanted as soon as they appear. It is important that the fruits required for the crop be as nearly as possible of the same size. If there is a great difference between them the smaller are liable to cease swelling and be worthless. There is nothing to choose between the two methods of fertilisation to which you refer; so long as the pollen is conveyed to the pistil of the fertile flower it does not matter how it is done. If we have not made the subject clear, we are quite willing to aid you further if you make your precise wants known to us.

**Stopping Vines (*Idem*).**—The laterals should be stopped at one or two leaves (according as there is space for the foliage to develop) beyond the bunches before the period of flowering, and then again after the berries are set, continuing the practice as long as growths are produced. We do not advise stopping the growths when the Vines are in flower, nor is there any necessity for this if the laterals have been properly attended to. Red spider is a very small insect that is highly destructive to Vines, Melons, and various plants: it does not, so far as we know, attack any other insects. The parasites to which you refer are quite different from the red spider, and will not attack your plants.

**Names of Plants (*A. D.*).**—*Pelargonium quercifolium*. (*J. T. S.*).—The specimens shared the usual fate of those that are simply enclosed in letters. From the smashed mass of vegetable matter we think we can distinguish No. 2 as *Sedum speciosum*; 3, *Lamium maculatum*; 4, *Anemone nemorosa flore pleno*, and 7 as *Stellaria Holostea*. The others are totally beyond identification. (*H. S.*).—Where sprays are simply enclosed in letters, and especially when they remain in the post office throughout Sunday, they almost invariably arrive in such a withered condition that the species cannot be identified. If we receive a specimen in suitable condition we will name it for you. (*S. R. B.*).—You are right about the *Bougainvillea*; it is a remarkably fine example of *B. glabra*. The small yellow flower is *Corydalis lutea*; the tufted *Veronica*, *V. repens*; the *Spiraea* a golden variegated form of *S. Ulmaria*; and the pale green plant with deeply lobed leaves is the American Puccoon or Bloodroot, *Sanguinaria canadensis*. (*A. P.*).—The specimen with white flowers is *Pyrus Aria*, the other is *Ruscus hypophyllum*. (*J. E.*).—*Cytisus Adami*. It was originated by Dr. Adam of Vitry, and was a bud sport from *Cytisus purpureus* inserted in *C. alpinus* in 1825. (*Longhurst*).—*Cerasus Padus*, the Bird Cherry. (*Constant Reader*).—The single flower is *Rhodanthé Manglesi alba*. The double flower we cannot determine from the specimen sent; if you send us a specimen of the foliage and describe the habit and nature of the plant we shall possibly be able to supply you with the name. (*W. E. B.*).—1, *Todea pellucida*; 2, *Todea superba*; 3, *Pteris tremula*; 4, *Doodia media*; 5, *Maxillaria tenuifolia*; 6, *Oncidium flexuosum*. (*F. C.*).—The specimen was not in good condition for determining its name, but it closely resembles *Asplenium aculeatum* var. *Brauni*. (*Old Subscriber*).—1, *Geum coccineum*; 2, *Centaurea montana*; 3, *Cheiranthus alpinus*. (*G. S.*).—Through being packed in cotton wool the small specimen was so withered as to be quite unrecognisable. (*E. W.*).—1, Too withered; 2, *Maxillaria Harrisonæ*, fine variety; 3, a smaller variety of the above; 4 appears to be a deformed variety of *Lycaste aromatica*. (*J. McD.*).—*Fraxinus Ornus*. (*A. C.*).—*Limnanthes Douglassi*.

**Supernumerary Queen Cells (*Buzz*).**—The queen cells built by the natural impulse of the bees in preparation for swarming will, of course, do for insertion in freshly swarmed hives. We prefer these to others if we find them ready to hand. The queen from this hive has undoubtedly been lost.

**Fertile Workers—Comb Foundation (*Idem*).**—Fertile workers are not produced in queen cells, but appear rarely in queenless stocks. They are workers exalted by an impulse to produce progeny into pseudo-mothers capable of laying drone eggs but incapable of fertilisation, and so incapable of depositing fertilised eggs and so producing workers. Both samples of lozenge-bottom foundation are good, the thin trellis also. This is suitable for sections only. Drone foundation is dangerous in sections where the drone comb in the hive is kept down in quantity. Drone in sections then attracts the queen, and the supers are more or less spoiled; but it is true that drone comb is more quickly built and stored than worker.

**Clearing Bees off Combs for the Extractor (*F. J.*).**—Before removing combs for the extractor do not puff smoke into the hive mouth, as this drives bees towards the end combs which you require to clear, but rather turn back the quilt off the end frame and puff down smoke between it and the hive side. It is a good plan to put a large board with one edge resting upon the alighting place, upon this jerking off the residue of bees, which of course immediately run in. If this trouble be considered excessive the quilt must be wholly removed, and the bees shaken down upon their frames. Some recommend a goose wing for whisking off the few remaining stragglers, but we use and recommend a painter's dusting brush as being decidedly superior. The brush is moved very quickly, and the ends of the hairs only are employed; so that the bees have no time to get between them, but are simply knocked away without injury to themselves. A little practice will soon give dexterity in handling it.

**Empty Queen Cells—Queenless Stock—Expelling Drones (*H. M.*).**—The cells you supposed to contain developing queens were without question empty from the first, and were either the remains of cells which had been the cradles of queens in a previous year and had been subsequently cut down, or were abortive cells which the bees in some inexplicable freak occasionally build—e.g., it is quite common, if foundation be given to stocks raising a new mother, for them to draw out a few incipient royal cells upon its face. The destruction of the drones is peculiar. Had the weather been cold we should have supposed that some of the brood had died of chill, or that the combs

had not been put together in due order, and that some of the drone larvae had been in consequence injured; but you speak of "worrying their drones," which is—for a well-nourished queenless stock, and when honey abounds in the flowers—outside our experience.

**Abolishing an Old Skep (*J. K.*).**—As you have already made an artificial swarm from your skep, we should recommend you to wait until three weeks after the operation before doing anything more. Then the last laid egg will have been converted into a perfect bee, while the young queen—unless queen cells were already formed at the time of driving, about which you give us no information—will certainly not have commenced laying, and probably not have mated. If you then drive your hive bare you will leave only broodless combs, while the honey will be at your disposal. Whether this second swarm should be added to the first is a question, and certainly care will have to be exercised, or you are likely to have considerable loss through fighting. You have not stated whether your intention is to adopt frame hives or to go on with skeps; but in any case if you mean to unite, the lots of bees to become one must be kept standing close to each other, and at the time of union smoked and sprinkled with thin syrup, scented if you like. The value of this scenting is not proved, but it at least can do no harm. We should operate early in the morning or not before four in the afternoon, when we are not likely to endanger the queen by upsetting everything while she is away on a wedding tour. If a frame hive is to be used we should take away the old queen and cage the young one until next day. Unions sometimes, though rarely, result in the destruction of both queens unless this precaution be taken.

#### COVENT GARDEN MARKET.—JUNE 1.

BUSINESS steady; all classes of goods being cleared and prices well maintained.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	6 0 to 8 0
Apricots.....	box	1 6 2 0	Nectarines....	dozen	0 0 0 0
Cherries.....	½ lb.	1 6 2 0	Oranges .....	½ 100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches .....	dozen	12 0 20 0
Figs.....	dozen	10 0 12 6	Pears, kitchen..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	0 0 0 0
Cobs.....	½ lb.	0 0 0 0	Pine Apples....	½ lb.	1 0 2 0
Gooseberries...	½ sieve	0 0 0 0	Strawberries...	per lb.	3 0 3 0
Grapes .....	½ lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus .....	bundle	2 0 5 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions .....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli .....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips .....	dozen	1 0 2 0
Cabbage .....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots .....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 6
Capsicums.....	½ 100	1 6 2 0	Kidney .....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 0
Celery .....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria .....	bundle	1 6 0 0
Endive .....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 6
Fennel .....	bunch	0 3 0 0	Shallots .....	½ lb.	0 3 0 0
Garlic .....	½ lb.	0 6 0 0	Spinach .....	bushel	3 0 0 0
Herbs .....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 2 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### THE CROSS-BREEDING OF CATTLE.

(Continued from page 431.)

To illustrate the practical results of cross-breeding it is necessary to take into account the advantage of pairing animals of different breeds for producing stock best adapted for feeding and fattening for the dairy, and also for rearing young stock to sell, or feeding for veal. At the same time we must not omit the importance of breeding by an alliance of two different kinds of cattle for the purpose of exhibition at our cattle shows, as many noblemen, gentlemen, and tenant farmers spend large sums of money upon their cross-bred cattle, and exhibit most valuable stock.

Let us first consider the crossing or mating of cattle intended for dairy purposes, and even this point must be treated as having several objects in view. We will take first the raising of stock for dairy purposes, for the sale of milk or for cheese-making. Most of the cross-bred animals which were formerly sent to our fairs and markets, but especially in the midland and western counties, came from the north, and were usually the produce of a cow of a good milking breed, although small in size, and a short-horned



bull. These animals were of greater size and earlier maturity than the dam, and still having a constitution that was able to withstand the rigours of the Scottish climate; at present, however, the Irish importations prevail. It is customary for dairy farmers for milk or cheese to select from them heifers for their dairy, but the steers go into the eastern counties for feeding and fattening. These heifers are generally good milkers, and when dry or barren feed well for beef, and are much esteemed for the quantity of lean flesh as well as fat which they afford. There is a second point, however, to be considered whilst these cows continue in breeding—that is, the calf, and its value for disposal as a suckler, for feeding as veal, or for rearing as stores. Some farmers take but little care, so long as the cows continue to breed, as to the male animal selected for use, because the calves are sold when a week or ten days old. If, however, a well-bred Short-horn or Hereford bull be employed the calves are more readily sold, and instead of 20s. or 25s., 35s. or 40s. will be realised for each one. When heifer calves are reared from the best milking cows for the future purpose of maintaining the numbers of the animals in the dairy it is easy to see the importance of having a really good bull, and one if possible reared from a good milking stock. We recommend the home farmer and dairy farmer to depend on themselves more than they have done by raising all the stock they require for keeping up the numbers of their herd, and to carefully rear and breed from such animals as suit their soil and climate in preference to purchasing from a distance.

The question of cross-bred stock for butter-making dairies must now be referred to. Although we prefer to keep a certain number of good milking short-horned cows and a few Channel Island cows, say in the proportion of five of the former to two of the latter, the necessity of so doing to the exclusion of cross-bred cattle is not insisted upon. Here again arise two points in the cross-breeding, for it is important that the main point of milk and butter should be kept steadily in view, and it must not be forgotten that the value of cows when dry or barren is important also. In crossing, therefore, we still recommend mating a Guernsey bull with the short-horned cows, because we always like to breed from larger females, as not only is richer milk obtained through the influence of the male in this case, but the cow influences favourably the milking capacity of the offspring. The best cows we have ever possessed were of a Short-horn and Guernsey cross, yielding an abundance of rich milk, and becoming large shapely animals when dry or barren. In crossing Short-horn and Jersey, especially when the male used is of the former breed and the cow of the latter, we have not seen satisfactory results. Even when a pedigree or well-bred bull has been used, the stock has commonly been small and delicate animals and unsatisfactory milkers as compared with the first-named mode of pairing.

In discussing cross-breeding for early maturity and baby beef, and also for exhibition, the fact deserves notice that Mr. Colman, M.P., besides obtaining other prizes for a younger animal, achieved a great triumph in the four-year-old steer class, where his white and blue roan steer—three years and seven months old, bred between a short-horned bull and an Aberdeenshire cow—carried everything before it, winning also the champion plate for the best beast in the Show. On some other occasions, too, we have noticed in former years that cross-bred stock has surpassed the pure pedigree animals in the same manner. This is great encouragement for cross-breeders to persevere by judicious selections to rear animals of the most profitable description for ordinary feeding as well as for exhibition. In the west of England, the home of the white faces, cross-bred cattle are commonly met with at most of the fairs, as many of the small farmers who keep two or three cows only send them to a pure-bred bull of the district. In this way a cross between the native or Welsh breeds and the Hereford make good fleshy cattle, much sought after by the butcher when fat,

being liked better than the pure white-faced Hereford, particularly when they happen to have a mottled or smoky face. The Devon breeders have done less than any others in crossing their cattle, which are admirably adapted for the soil and climate of their district, besides being much sought after for working purposes. Still by a cross with the Hereford or Sussex they would be much improved in weight and size—a matter of great importance in working animals, as it gives them more power in labour. Most of the cross-bred cattle we meet with at present partake more of the character of the Short-horn than anything else, so that to this breed belongs the credit of having done most towards supplying animals valuable for early maturity. No matter of what sort or amalgamation of sorts the cow may be, a cross with a pure short-horned bull seldom fails to make an improvement in size, quality, and fattening properties, if not always in the milking capacity of the produce.

Many persons think that cross-breeding has been carried to too great an extent, and fear that at no distant date our breeds will be so mixed that it will be difficult to distinguish one from the other. There is, however, an important counterpoise in the fact that so many wealthy gentlemen and agriculturists pride themselves upon the pureness of their breeds of cattle, and that it is their pleasure to preserve them; an instance of which is stated that at the Duke of Bedford's at Woburn Abbey—where some years ago a herd of from thirty to forty pure Herefords was kept, also that a large quantity of milk and butter was required—the farm steward found it impossible to improve the herd in milking and fattening or flesh-producing qualities at the same time, and had often to sacrifice a very fine cow because she gave no milk; or others that were good milkers, but unfit to breed an ox fit for exhibition. Finding also that it was almost impossible to unite the truth of form and aptitude to fatten, according to the required standard in connection with a profitable herd of dairy cattle, it was thought desirable to keep two herds—one for breeding purposes (the dams only rearing their own calves), and the other for dairy purposes. Still it was also eventually decided to try an experiment and keep some twenty polled Norfolk cows, which are notoriously good milkers, and mate them with a Hereford bull. The produce proved much larger animals than the pure Herefords of the same age, and made some really good butchers' bullocks.

#### WORK ON THE HOME FARM.

*Horse Labour.*—Horses are still employed in preparing the land for sowing the root crops, because although in the northern and north-midland districts both Mangold and Swede seeds have by this date been drilled before this time for the most part, yet in the southern and south-eastern parts of the kingdom the best time for sowing Swede seed is during the first and second week in June. If, however, the crop is required to remain in the land during the winter months to be fed off on the land in the spring, those may be sown until the 20th of June, or even later; for, being after a catch crop on very light gravel or sandy land, they often take very well in this way if the seed is drilled the same day as the land is ploughed. This is now the best time to set Cabbage plants, as they will now be strong enough for planting out, even though the seed was sown in March. The method of planting is of great importance. If the land should be moist and fine the plants may be set with the usual planting stick. If, however, the weather should be very dry and the land very fine, whether on the stretch or on the flat, they are best set with the spade. If hand labour is short and the plants strong they may be laid along the furrow and ploughed in. In this way plants buried too deeply require to be released, and covered with the hand hoe where too much exposed. The mowing machines will now be at work in the early districts, in cutting the forward grass, such as Hop Clover and Ryegrass; and in a few days the Saintfoin will, together with other Clovers, be quite fit for mowing. Last week we took occasion to say that field hay may be made with advantage upon the same system of tedding, &c., as park or pasture hay; and this is no random idea, but one which we have carried out in practice with great success for many years. It is not now, as it used to be, a question of much hand labour, for the tedding machine, the horse rake, and the elevator in stacking the hay not only do the work efficiently but in less time—a matter of extreme importance.

*Hand Labour.*—Before the busy time of haymaking commences all those pastures or parklands where Buttercups abound should be

mowed over to cut off the flowers and seed heads of these weeds, for they are very pernicious, not only injuring the butter but also they interfere with the proper consumption of the grass, being distasteful to the cattle.

**Live Stock.**—Cattle in the boxes fattening should now receive Clover cut up and taken to them daily; if not Clover let it be Trifolium, Vetches, or Lucerne. Each of these pay well to feed bullocks with, or young stock intended for baby beef. If some Mangold has been retained it may be cut and mixed with the cake, corn, or pulse meal; in the absence of Mangold, however, succulent grass may be passed through the chaff-cutter to mix with the cake meal. In this way there is not only far less waste of the superior food, but it has a better effect upon the animals consuming it. The ewes and lambs for stock may now be changed from the Saintfoin or old leas during the day to the Vetches and other catch crops at night; and if they are to have cake it should be on the arable land in their night quarters, and if possible it should be given in admixture with Mangolds, in the same way as recommended for the cattle, in order to avoid waste. The cake or corn should never be given alone but mixed with some materials, such as hay damped after being cut into chaff, or otherwise sweet straw chaffed and moistened with molasses—anything to which meal will adhere readily, in order to prevent waste. It will soon be time now to wean the lambs, in doing which we prefer that the lambs should remain on the ground they have been accustomed to for some little time, because they will always be better satisfied when the ewes are removed than when they are removed to other pastures apart from the ewes. If the lambs have been properly fed in advance of the ewes previously it will render the weaning much easier. Where the Somerset and Dorset horned sheep are kept they should now have a choice Hampshire down ram with them, and if early lambs are required shearing should not be done too soon. This applies to ewes off-going in the autumn. The regular stock flocks on the chalk and limestone hills may be shorn directly; they may then be expected to produce lambs in the latter part of November and early in December—quite early enough for breeding flocks of either Dorset or Somerset horned stock. This sort of sheep have an important future before them, and it behoves all the breeders to select rams of the choicest and purest Somerset blood, for in case the old Dorset type should be lost the exchange for the best stock of Somersets would be advantageous.

#### VARIETIES.

**PEA FOWLS.**—A correspondent desires to know where he can procure a few Pea-hen's eggs for sitting purposes and the price. Those who have eggs for disposal should advertise them.

— **THE BRITISH GOAT SOCIETY.**—At the second annual meeting of the British Goat Society, on Thursday last, the Duke of Wellington was unanimously elected President for the year, on the motion of Dr. A. L. Grace (Berwick-on-Tweed). The report of the Hon. Secretary, Mr. Holmes Pegler, stated the Society continues to increase in members, the list having now reached a total of 202. The late successful entertainment of a kid dinner is to be repeated in connection with a Show of Goats at the Alexandra Palace.

— **THE HOP CROP.**—There is said to be every prospect of a good Hop season in the Kentish fields. The recent warm weather and the refreshing rains of the past few days have caused the plants to make considerable progress. The bine is reported free from insects, and with a continuance of the present weather growers will become very hopeful.

— **STAFFORDSHIRE AGRICULTURAL SOCIETY.**—The annual Exhibition of this Society will be held on September 14th and 15th at Staffrd. The Show will include stock, implements, and poultry. Entries for stock and implements close August 13th, and poultry August 27th.

— **POULTRY AT THE BIRMINGHAM DAIRY SHOW.**—Poultry are well represented, as will be seen by the following figures, which express the number of pens of each kind of fowl:—Brahmas 114, Dorkings 70, Cochins 151, French and Game 107; Ducks, Geese, and Turkeys, 58. These are exclusive of the classes for barn-door fowls, dressed poultry, eggs, &c., of which there are over twenty classes, some being confined to Warwickshire tenant farmers or cottagers. The proposed trial of incubators has been abandoned, as it was thought better to show the machines to the public during the week of the Exhibition, and it was found that nothing short of a twenty-one or twenty-eight days' trial would be considered satisfactory by the bulk of the exhibitors. Poultry feeding by machinery will be carried on daily at stated hours, and short practical addresses will be delivered by Canon Bagot on "Continental Dairying;" Mr. Jas. Long on "Poultry-keeping for Farmers;" and also by Professor Sheldon.

— **THE WINGS OF BIRDS.**—Look at a quill feather, and you will see that on each side of the central shaft or quill there is a broad thin portion, which is called the vane. The vane on one side of the shaft is quite broad and flexible, while that on the other side is narrow and stiff; and by looking at a wing with the feathers in their places, you will find that they are placed so that they overlap a little like the slats on a window blind. Each broad vane runs under the narrow vane of the feather beside it; so that, when the wing is moved downward, each feather is pressed up against the stiff narrow vane of the one beside it, like a blind with the slats closed. After the down-stroke is finished and the up-stroke begins, the pressure is taken off from the lower surface of the wing and begins to get on the upper surface, and then to press the feathers downward instead of upward. The broad vanes now have nothing to support them, and they bend down and allow the air to pass through the wing, which is now like a blind with the slats open. By these two contrivances—the shape of the wing and the shape and arrangement of the feathers—the wing resists the air on the down-stroke, and raises the bird a little at each flap, but at each up-stroke allows the air to slide off at the sides and to pass through between the feathers, so nothing is lost. —(St. Nicholas.)

— **THE FLIGHT OF HOMING PIGEONS.**—Too great attention, said Mr. Sparrow in a paper read before the Balloon Society, cannot be given during the rearing of the young. Arrangements should be made in the loft so that when the young can fly around strongly they can be let out by themselves for their morning fly. If let out with the old birds the latter will, after a few circles, pitch, bringing down with them the young, the old birds returning to their lofts in order to attend to their parental duties. But if the young are let out by themselves early in the morning, with a little attention they will at once dart off, and on a clear bright morning get up to a great height, and frequently keep on the wing for two or three hours at a stretch, and clear away out of sight for an hour and upwards at a time. By this sort of exercise they get a good knowledge of the neighbourhood around their home, and it aids them in getting into condition—an essential requisite if birds are to be called upon to perform long journeys. All amateurs do not follow the same system of training; but a little extra care and trouble is never thrown away, but well invested. The system preferred is to take them about a mile from home, selecting a spot as free from buildings as possible, or the young bird, in its initial performance, might "pitch" on some housetop, and this is a bad habit to acquire. In the first "toss," to give them more confidence, two or three might be started together; but afterwards they should be started singly, letting each bird get clear away before another is started. It is surprising how soon they understand what is required of them. Plenty of this sort of exercise for a few miles in different directions around home, will be of good service to the birds. When the route has been decided upon, the birds should be kept in as nearly a direct line as is convenient. In England, 100 to 120 miles for young birds is very fair work, this being equal to 200 on the Continent where the country is flat, and the atmosphere, as a rule, clear. In order to bring out fully the working capabilities of the birds it is necessary that they should be trained during the first season, and it is best to keep them at work in the same direction. Some excellent work is recorded of English birds trained by English societies. The average rate at which Pigeons travel is forty miles per hour, and they generally prefer flying at a height of some 100 to 200 yards.



#### GROWING CHICKENS.

THERE are times of the year when the energies of poultry fanciers are wont to flag. The buying and mating of our breeding pens in the autumn is interesting; we watch eagerly for our first eggs and save them with care; we busy ourselves in the early spring over our sitting hens or incubators, and bestow much attention on our early broods; but when our chickens have become legion, when the weather becomes hot and tiring, above

all when a time of year arrives generally devoted to travelling and "change of air," we are apt to forget our poultry, believe that they will get on somehow, and put aside our hobby, to resume it again when the show season comes round and cups and prizes are again to be won.

There are few things obtainable without toil and trouble, and certainly success in poultry keeping is no exception to the rule. Where chickens are reared solely for the table, and there is no desire to produce fine specimens as stock birds for another year, or winners in the show pen, it is true that, provided they have a good range, a very small amount of attention will suffice for half-grown fowls. The days are now long and insect food is abundant, so that they pick up much for themselves, and may without harm go many hours between their regular meals. But now-a-days most of us wish to produce fine and handsome if not exhibition birds. If we are to succeed in doing so we must have no seasons of neglect. The growth of our young stock must be watched and judiciously helped. If we go from home others must be taught to give some attention and intelligence to the matter.

We have often written against the forcing of young poultry by condiments and stimulants, and need not here repeat our warnings. Chickens which grow slowly and steadily always turn out the largest and best in the end; but we must be sure that they do grow steadily either in development of size or feather, if they do not something is wrong and must be remedied. We say "or feather," because a bird which is producing feathers at once all over its body cannot possibly at the same time increase much in size. Some kinds, as Game and Dorkings, show an astonishing growth of feathers in their earliest days; others, as Malays, Brahmas, and Cochins, are never properly feathered till they are half-grown. The special peculiarities of breeds must of course be taken into consideration, but when it appears that the young stock is not growing, or, worse, if it seems to go back, some steps must be taken at once to give the chickens a fresh start.

Let us look at a few of the causes which check growth, and the remedies for them. The following are the chief of them—1, Indiscriminate mixing of chickens of both sexes and with old birds; 2, Overcrowding on their ground, or even if there be not too many birds for the area, keeping them constantly about the same place; 3, Insufficient housing and bad ventilation of houses; 4, Bad feeding, or too much sameness of food.

1. Where there is but one poultry yard for both breeding birds and chickens it is almost impossible to rear the larger kinds successfully. The old birds peck the chickens and rob them of their food; even if we manage to give them aside enough to eat they are not happy, and experience has shown us that chickens will not thrive unless they are happy and free. It is a common thing to see half-grown broods penned up in miserable wired runs or cages, while the adults are occupying the large yard. This is a mistake; chickens cannot thrive or grow in such a place, while at this time of year with care old birds may be kept healthy in confinement. We do not, however, advise anybody to attempt to rear more than a few chickens for the table, all to be killed off by the time they are four months old, unless there are two distinct runs with separate houses for them. Indiscriminate mixing of the sexes, too, is after they are three months old an evil. Their separation, however, requires judgment. We have often known cockerels pine if taken from a free range and placed by themselves even in a large enclosed run. If separated at eight or ten weeks old, and at first specially well fed, they generally soon become reconciled to the change and continue to grow. We would, however, rather have a really growing and fine brood ranging at large mixed than divide them to be put in small runs. Nothing is so bad as letting forward cockerels run about among the adult hens.

2. Few fanciers realise the importance of from time to time changing chickens to fresh ground, and of thinning out all useless birds as soon as possible. We have always found our own stock most successful in the years when we have most ruthlessly killed all indifferent specimens; indeed, absurd though it may sound, we are often really pleased to find good reasons for discarding some of our chickens when numerous, as we know well that the remainder will benefit by their room. A change, too, of ground will often give a fresh stimulus to growth. Common sense is very necessary for such judicious changes as for all other things. Where there is variety of ground much good may be done by selecting it according to weather. In a dry season we take our most promising chickens to rich damp pastures and orchards, in a wet one to dry and sunny banks with dusting places protected by rocks. Last year we saw a most striking proof of the benefit of a change and removal to a less crowded yard. Most of our Dorking pullets ranged about a valley; it is true that they had many houses at considerable distances, but they congregated

together too much through the dry month of August, and a flock of fifty Ducks often made their way from a piece of water at feeding times and doubtless got the lion's share. A northern fancier applied to us for a pullet, and we candidly told him that we could not part with our two best, but would let him have about the third finest. He was content. Our best pullets of this breed did not continue to grow as they ought, and by the time of the great shows were disappointing after splendid early promise. At a certain show about four months later we made the acquaintance of the purchaser of this pullet and complimented him upon his splendid first-prize bird. To our great astonishment we learnt that it was none other than our own pullet, which seemed to us to have far outgrown her superior sisters; indeed she looked two months older, and must have weighed 2 lbs. more. Such is a practical instance of the advantage of a change to a new air and less populated yard.

3. Nothing is more detrimental to the development of chickens than close and crowded houses. Hot and unwholesome air sows the seeds of maladies innumerable. Only those who have opened the doors of a crowded and ill-ventilated poultry house after a hot night can fully realise how unwholesome foul air really is. On the other hand, the beginnings of cold, roup, and consumption are often contracted from a draught or drip through a time-worn roof. In all these cases a knowledge of the evil suggests the remedy.

4. Bad feeding and too much sameness of food is the last and a very fertile source of young birds' decline. It is commonly thought that anything in the way of grain or meal will do for fowls: this is a great mistake. Corn merchants produce mildewed wheat and heated barleymeal, observing "Here is something that will just meet your requirements, as you are a poultry fancier." It is true that much small and occasionally slightly damaged grain, unfit for grinding, will do well for chickens, but to give them mildewed and heated stuff is the very worst economy. There is little nourishment in it, fermentation takes place, the digestions of the poor creatures are utterly deranged, and what living creature can thrive, much less grow rapidly, when the digestion, the source of all its nourishment, fails? Buy sound corn and sound meal. Probably you have to pay a good price for it, but be assured that you get your money's worth in the rapid growth of your chickens, in the strength of their bones and delicacy of their flesh. Not only must food be good, it must be varied. Chickens like human beings get sick of the same diet, however excellent, administered regularly three or four times a day. In the way of grain, wheat which we recommend as a general food may at times be changed to barley, a little maize, or, better still if it can be got, to *dari*. The meal can be mixed in various ways. Sometimes bran, a good former of bone, can be added to the oatmeal porridge instead of barleymeal; sometimes quite a small amount of Spratt's food boiled or scalded can be mixed in sharps and the oatmeal discontinued. Boiled rice in hot weather makes a good variety, and kitchen scraps seem always to induce an appetite where all other things fail. Lastly, if chickens become dainty without any apparent cause a judicious day's starving will often bring back their appetite and cure satiety.

There is one more cause of growth being checked which we have almost omitted, because we have too often insisted upon perfect cleanliness in houses and runs for it to seem necessary; we mean parasitical vermin. Infested by such a plague chickens cannot possibly grow. We have often given remedies for it, and only now mention the subject because a young fancier might possibly see his young stock droop mysteriously and have no idea of this occult but very disagreeable cause. However, we believe that chickens are almost always weak or ill from some other cause before they are tormented much by insects. Strong birds rid themselves by natural means of such enemies, while weakly ones succumb to them.

An intelligent person will soon observe when chickens flag or fail, and will almost intuitively see the cause and remedy. We offer these few suggestions to those who have little experience in gallinaceous birds, or whose time is too much occupied for real study of their habits.—C.

## PRACTICAL SCIENTIFIC BREEDING.

### GENERAL PRINCIPLES.

(Continued from page 411.)

WANT of space forbids us entering into any detailed account of the special considerations as to breeding applicable to each variety; and as it is only in this way that much could be said as to the breeding of Pigeons beyond what we have already said as to poultry, we must content ourselves with merely adding a few general hints as to management.



In the first place, the sexes must be separated until about the middle of February, as well to prevent too early breeding, which would be injurious to the hens, as to avoid any mating between birds which it is not desired should mate. When the breeding season arrives each pair of birds intended to mate with each other may either be put in a loft by themselves until they have paired, or they may be put into a pen constructed in two compartments with a moveable wire partition between the compartments, so that the birds can see each other through the partition, and then after a few days the partition should be withdrawn. The matching-up can generally be managed in this way, but should the hen be inclined to lord it over the cock it may be necessary to keep her confined in the dark for a few days and then return her to the pen, to which the cock will in the meantime have become accustomed, and of which he will regard himself as master. In three or four days after they have mated the birds may be returned to the breeding loft, but not more than one mated pair should be set free at the same time, as this may lead to quarrelling for nests and other undesirable disturbances. The breeding loft should be reserved exclusively for mated birds, as the presence of odd birds frequently causes jealousies which are not always groundless. Pigeons are generally faithful once they have regularly mated, but exceptions are by no means rare; and nothing is more provoking to the fancier than to find that a match, upon the bringing about of which much trouble has been expended, has been broken through the intervention of some unmated bird incautiously left in the loft.

If an accidental alliance has been formed which it is desired to break, the hen should, after she has laid her eggs, be removed, kept about a fortnight in seclusion, and then introduced in the usual way to the new mate intended for her.

The first egg which the hen lays should be removed from the nest and an imitation or hard-boiled egg substituted for it until the hen has laid her second egg. This is done to avoid the earlier hatching of the first laid egg and the consequent undue advantage as to feeding which the bird hatched from it generally obtains.

To prevent an excessive strain upon the constitutions of the birds the breeding season should not be unduly prolonged, and all birds which are not actually engaged in hatching or rearing operations should be separated about the middle of August, those so engaged being separated a little later as opportunity offers.

The more delicate breeds, and some which from the character and shape of their beaks are ill adapted for feeding their young ones, require to be supplemented by a supply of nurses to take charge of the youngsters. These are generally chosen from amongst the hardier breeds, best suited by their nature and disposition for the task imposed upon them, or are common Pigeons specially bred for the purpose. The change of the young Pigeons to their foster-parents is sometimes effected while they are still in the shell, sometimes when they are about eight days old and have consumed all their own parents' "soft food," as the natural secretion upon which the young Pigeons are at first fed is called. If the change be made while the birds are still in the shell it must be only between birds whose eggs were laid within a day or two of each other that an exchange is effected, as otherwise the supply of soft food will not be ready for the youngsters when they make their appearance. Again, if the transfer to the foster-parents be made when the birds are a few days old, care must be taken that they are transferred to birds whose own offspring are, if anything, rather younger than their foster-children, and who will thus be able to supply them with soft food adapted to their digestive organs.

An essential distinction between the breeding of poultry and Pigeons is this—that whereas poultry breeders but rarely think of crossing-in a bird of another colour to improve the colour of a strain, Pigeon breeders constantly resort to this expedient, and indeed, as to some varieties, habitually breed from birds of different colours mated together. This renders it necessary that the young Pigeon fancier should, in addition to learning the points of the breed he takes up, also be careful to ascertain the most desirable crosses for the production of sound colour, and of the other points of colour which are so important in the show pen.

Oriental fanciers have even gone further in their desire for variety and their search for improvement, and have produced birds which will not breed true to colour if mated with other similar birds, but which require for their mates birds of a different shade. These varieties owe their origin to the mingling of three or more colours in one bird; and as the process by which they were produced undoubtedly required the employment of successive various crosses, so a like method of breeding is necessary for their perpetuation. For the successful breeding of these varieties considerable skill is necessary, and young fanciers, how-

ever much they may admire the variegated plumage of the Sati-nettes and Blondinettes, will do well to begin with something more simple, and in which success is not so problematical.

(To be continued.)

### DOVERIDGE POULTRY SHOW.

I FEEL gratified by the tone of the remarks made by "C." in your last paper about the arrangements of this Show. I cannot quite understand about the "guarantee for good management of a prospective show"—viz., "that it should be regulated by practical fanciers." Is it necessary to constitute a practical fancier that he should keep several kinds of fancy fowls? My fowl house door is covered with prize and commendation cards for Houdans, the only breed I have kept, and those I have regularly exhibited since 1871. My coadjutor the Secretary has not been long in the fancy, but he has, perhaps, more different breeds than I possess specimens of the kind I keep, and his fowl houses almost amount to a small village. I know he has been a successful exhibitor, but I do not know to what extent. If the public will send us plenty of entries we will endeavour to manage the Show practically and properly. Our schedule is now ready, and I hope it will be considered a fair attempt for beginners.—E. J. BLAIR.

[A reperusal of "C.'s" comments will convince Mr. Blair that no slight was intended to be cast upon any of the persons named in connection with the Show. "C." merely stated that as a rule it is desirable to have a committee of practical fanciers, and in this respect we must say that we entirely agree with him.—ED.]

### OUR LETTER BOX.

**Chickens not Thriving** (*G. P.*).—The long-continued dry weather has probably been the cause of your chickens not doing so well lately. Chickens always do best when there is a fair supply of moisture in the atmosphere. Have you tried the effect of a plentiful supply of green food and a little meat daily? We have not so far had many complaints as to success in rearing this season.

**Chickens Ailing** (*Curate*).—It is impossible to tell from the imperfect account you have given what (if anything) is the matter with your chickens. You say they have a dark rim round the eye, but you do not state of what breed they are or give any other particulars. It may be that the rim you speak of is natural marking; in any case it could not be caused by anything done to the eggs.

**The British Goat Society** (*A. L. N.*).—The address of the Secretary is H. S. Pegler, Esq., 346, Strand, London, W.C., from whom you can, we think, obtain the information you require.

**Muzzling Dogs** (*Protection*).—Professor Ferguson says:—"The wire basket or cage muzzle, when made sufficiently large to admit of the jaws being opened apart for drinking and tongue-panting, is a humane and efficacious invention. It effectually prevents the animal from doing mischief with his teeth, while it allows sufficient freedom to the mouth and tongue for his comfort. The mere screen muzzle of wire projecting forwards from the upper part of the nose, leaving the under jaw and mouth uncovered, is often found ineffectual as a preventive of biting. All persons muzzling dogs, particularly in warm weather, with the ordinary leather muzzle that prevents the opening of the mouth, should be punished for cruelty to animals."

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.					Rain.
1881.  May.		Baromet- er at 29° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	22	30.441	60.2	51.9	N.E.	54.3	70.0	44.0	119.4	37.2	—
Mon.	23	30.267	65.8	55.3	E.	55.3	72.4	46.7	123.3	40.4	—
Tues.	24	30.106	63.6	55.0	N.E.	56.6	69.7	47.8	120.3	38.8	—
Wed.	25	29.833	63.4	56.9	N.E.	57.6	75.6	48.7	113.7	42.8	0.064
Thurs.	26	29.794	60.4	58.4	N.	57.6	67.6	50.7	113.6	46.6	0.148
Friday	27	29.819	58.4	57.0	N.W.	57.8	68.4	55.6	92.6	55.7	—
Satur.	28	29.910	62.6	57.0	N.W.	57.9	74.8	56.6	122.0	51.6	0.571
Means.		30.024	62.1	55.9		56.7	71.2	50.0	115.0	44.7	0.783

### REMARKS.

22nd.—Fine and bright throughout.  
23rd.—Fine and bright, but very gusty; calm evening.  
24th.—Fine warm day.  
25th.—Fine bright morning; overcast afternoon, showers 4.15 P.M.; damp close evening.  
26th.—Showery during morning, and very close; fine afternoon and evening.  
27th.—Calm, overcast, and very close; spots of rain in afternoon; finer evening.  
28th.—Fine and warm the greater part of the day, but rather close; shower at 11 A.M.; heavy rain with thunder at 6 to 6.10 P.M., 0.28 of an inch falling in those ten minutes.

A warm and generally fine week, with a slight thunderstorm at 6 P.M. on Saturday.—G. J. SYMONS.



9th	TH	Alexandra Palace Exhibition of Floral Decorations and Pelargoniums (two days).
10th	F	
11th	S	TRINITY SUNDAY.
12th	SUN	
13th	M	[at 11 A.M.] Royal Horticultural Society—Fruit and Floral Committees Royal Botanic Society's Evening Fête, York Floral Fête. [South Essex and Southend Horticultural Shows.]
14th	TU	
15th	W	

### SHOWS AND THEIR USES.

JUST as the great industrial exhibitions, international or local, general or special, contribute to an expansion of trade, inciting also to quicker production and skilled workmanship, so must exhibitions of products of the soil have the same results. They give an impetus to those engaged in the twin occupations, which together form the greatest and most important of all British industries—agriculture and horticulture; impelling those onward who have hitherto lagged behind, and nerving those who have won their spurs not only to maintain their positions but to increase their prowess. This is what is accomplished by public exhibitions; indeed such results are their natural outcome, for there is implanted in the human mind a desire to excel. Were this not so, and did not the results indicated follow as if in obedience to a law of Nature, exhibitions would be anomalies, and would long ago have died of inanition. But so far from the exhibitions that represent both agriculture and horticulture diminishing in size, decreasing in numbers, failing in variety, or lacking in interest, the exact reverse appears to be the case, for they are larger, more numerous, more varied, and appear to attract greater attention than ever. Indeed, the spirit of emulation is so predominant that there is—and it would be a great wonder if it were not so—about as much rivalry among promoters of shows as prevails among exhibitors.

A very practical question is now often asked—namely, Have the results that have generally accrued, say in agriculture and horticulture, been proportionate to the efforts that have been made to produce them? Is the cultivation of the present generation so far superior to the system of the past that farming is more profitable, and gardening more productive and enjoyable, than before? An affirmative reply cannot be given to the first, and, it will be conceded, the most important question; but this is certainly not the result of exhibitions, but in spite of them. Agriculture is not prosperous now, but the cause is wholly beyond the influence of any “shows;” and as no one can define it in a sentence, it will be convenient to attribute it to a “fortuitous concurrence of atoms,” and there leave it for polemical controversy. But another question of some moment arises—Were it not for the knowledge that has been gained by public exhibitions, would not the depression that has prevailed during the past few years be greater than it is now? According to such logic as is derivable from negative evidence, the presumption is that the depression would certainly not have been less, but probably would have been

much greater; yet there is no denying the fact that the cultivators have had to bear, and are bearing, the brunt of the “bad times,” and their allies the machinists and others have so far had the best of the “improved systems” that have been instituted. Without machinery—thrashing machines, mowing machines, cultivators, &c.—the agricultural state of this country must inevitably be in a worse condition than it is now, because it would be deprived of the material that is necessary in the battle of competition. Shows, then, have done great good in having brought valuable inventions before the public, and especially to those who have prudently availed themselves of them, much emphasis being laid on the word “prudently.”

But to the second primary question as applied to gardens. Are gardens more productive and enjoyable than before horticultural shows were so general? It is a question if they are more productive, as judged from an utilitarian standard. The old kitchen gardeners of the past generation were as competent in their calling as the young men of the present time; and the hardy fruit culture of half a century ago was as good as it is now, and in some respects probably a good deal better. The grand and fruitful old espaliers and magnificent wall trees trained by the grandfathers of the present adult generation of gardeners have mostly disappeared, and have in few cases been substituted by trees equal in every way to the originals. Fancy forms have been inaugurated, and varieties have been increased, perhaps too much increased, yet some are improved; but the fruit supply is not better than it was before shows were so numerous. Exhibitions, then, have done but little good in the hardy fruit department of the garden. Neither have they in the outdoor vegetable department. That this is so we have pretty conclusive evidence from the superior products of the best market gardeners—men who have no time for visiting shows, and yet whose produce, there is reason to believe, has by some means had the honour of being arranged in the winning stands of vegetables at some of our greatest exhibitions.

Turn we now to another phase of the question, and withal a most important one. Without, like certain individuals of artistic proclivities, making too much of the fashionable word æsthetics, it must be stated that the term has some application to the department now under consideration, which undoubtedly represents both what is ornamental and useful—the term useful being founded on and applicable to anything that is necessary. This branch of gardening is the outside floral, and under glass section—the latter, of course, including fruit as well as flowers. There are some who have the habit, a pedantic one probably, of asserting that the present state of gardens, flower gardens especially, are strikingly destitute of taste. Be this as it may, it is not the result of flower shows. It would, however, be an unfortunate monotonous world if all gardens were arranged according to the taste of one or two individuals, as it might happen they may have errotchets, and crotchety people are proverbially not the most reliable of guides.

Now, in the department under notice, the forcing and growing of fruit under glass, and the production of plants and flowers in the homes of the affluent—and it would be well if they were represented as far as possible in the homes of all—there has been great improvement of late years. The supply is better, more choice and continuous, than formerly. To this improvement flower shows have materially contributed. They

have in the first place created a desire on the part of innumerable exhibitors to have what they have seen produced so well; and have proved magnificent object lessons to the searchers for knowledge, and have afforded examples of skill that they might emulate. In other respects the shows have been of great use, for they have encouraged mechanical and scientific enterprise in the designing and erection of structures and heating them effectually and economically, also in giving a stimulus to inventors, and encouragement to improvers of labour-saving implements and appliances. All this is beneficial, alike to the fabricators, as it ought to be, and to those who enjoy the fruits of their skill and labour.

The widely extending and ever-growing love of plants and flowers that is a characteristic of the present era, and which will without doubt continue to expand, is of great benefit nationally, professionally, and individually. It appears to be an element in our being that man must have something to foster, woman something to love. What more worthy of the intellect of the one and the heart of the other than flowers? Stars of earth they are, as the great bard sang, and emblems of heaven. Societies do well to encourage their culture, and their shows create a taste that is health-giving, mind-expanding, and in all respects salutary. The "appetite growing with what it feeds upon," is ever making fresh demands; and forthwith men of enterprise formed trade establishments that became great, even of world-wide fame, and other men are found who will risk health and even life in the pursuit of the vocation that has been created.

The tendency of the times appears to be towards utilitarianism even in plants. It is not the fashion now to spend half a dozen years in growing a specimen Heath, nor for a stout man to sit for two days tying the plant into "form." The stiff ideal form of the old plantsmen is being supplemented by a style partaking in some degree of the delightful freedom of Nature. Grand specimen plants are always admired, but those are most in repute that are of quick growth and free, not slow in movement, stiff and formal. In these electricity days quick returns are in fashion; these the smaller plants afford—useful plants that are adapted to other purposes than exhibitions—namely, the adornment of homes. Beyond question the custom, for custom it now is, of giving prizes for the grouping of small plants artistically at exhibitions, first advocated in this Journal, has been successful in various ways. It has increased the number and variety of plants exhibited both at metropolitan and provincial shows; has enabled new and rare, even if small, plants to be brought forward with greater advantage than formerly; has developed taste in arrangement; and has extended the trade for plants to a greater extent than elephantine specimens alone could possibly have done. Yet undoubtedly grand examples of culture should be encouraged, especially as Heaths and other hardwooded plants are so valuable for decorative purposes when in a comparatively small state.

It would seem to follow from this that while shows have been of undoubted benefit, those engaged in commercial plant culture have reaped the greatest advantage from them. This probably is so. Purchasers of plants have had their home pleasures enhanced after admiring the plants at shows and procuring them; gardeners have by visiting the exhibitions become more skilled cultivators; and some of them who have the privilege of devoting the resources at their command to showing as a system—a profession—have derived, as they have deserved to do, pecuniary profit; but the vast majority have had to be content with honour. The costs of travelling, &c., even in these big prize days, have too often left no margin; but this little, somewhat strange to say, some employers have appropriated. They have a right to do this; but it is happily rarely the custom to enforce that right, for those who have had experience in showing know that the men who win have spent hundreds of hours working when they might justly and lawfully have been resting. Large prizes to enable gardeners to cover the expenses of exhibiting appear to be indispensable, for they have no indirect gain; but such prizes are less needed by those to whom shows and press notices bring much business; and the majority of nurserymen have the reputation of being true horticulturists, and do not regard shows and societies as organisations for directly compensating them for their immediate outlay.

Draining societies, whose sole and only object is the promotion of horticulture, is a bad policy, and almost tantamount to killing the goose that lays the golden eggs. They should be supported, not exhausted, for their promoters labour without reward, except that of fostering the industry that they believe is fraught with benefit to all. Their managers, London and provincial, often receive as much of obloquy as honour. They deserve a better fate, and merit support—steady, regular, and continuous; for shows more frequently result in loss than gain, and whatever profit may occasionally result is devoted to the more effectual

furtherance of the great object of their being—the advancement of horticulture.

Still shows and showing must never be regarded as the be-all and end-all of gardening, for it is a fact that the names of many of the best cultivators of plants, flowers, and fruit are never seen in exhibition lists at all; and it is a little curious to notice the number of those who show and lose who "have left their best things at home!" Even to such people shows are useful, as they teach that this policy seldom brings them either sympathy or profit.

#### METROSIDEROS FLORIBUNDA.

THIS fine old greenhouse plant, which is known as the Bottle-brush Tree, is seldom seen now. I am surprised it is not more generally grown, being so easy of culture and free-flowering when well established. I find it very useful for cutting. The shape and colour of the flower spike is very telling when mixed with other flowers. The plant produces its flowers all through the spring months, but just now it is a perfect picture, having forty spikes of bloom out. It is growing in a 10-inch pot, is 5 feet high, and 3 feet through. It has not been shifted for three years. I find it flowers more freely when rootbound. I enclose a spray for your opinion thereon.—STIFFORD.

[It is a fine example of a fine old plant.—ED.]

#### APPLE TREE ON A PLUM STOCK(?).

INSTANCES of fruit trees succeeding on stocks of different yet allied genera are exceptional, confined, so far as I know, to the Pear, Apricot, and Peach. The Pear succeeds on the Quince (*Cydonia vulgaris*), Hawthorn (*Crataegus oxyacantha*) Mountain Ash (*Pyrus aucuparia*), and Medlar (*Mespilus germanica*). Apricots are invariably on Plum stocks, usually Mussle. Peaches and Nectarines thrive remarkably well on Plum stocks, and in certain localities are successful on the Almond (*Amygdalus communis*). The Medlar succeeds on the Quince, Hawthorn, and Pear. In all cases there is affinity in sap. Those with gummy sap, as the Cherry, Plum, Peach, Nectarine, and Apricot, do not succeed on those which have not descending gummy saps, as the Apple, Pear, Quince, and Medlar. The stone fruits require stocks of a similar nature; and so with the others—those with pips do not thrive on stone-fruit stocks. The Apple and Pear, though closely allied, do not afford stocks for each other, although Mr. Knight obtained a heavy crop of Apples from a graft inserted in a tall Pear tree only twenty months previously. The graft, however, perished the winter following.

Having repeatedly heard of an Apple tree on a Plum growing at Grinkle Mill, Easington, North Riding of Yorkshire; and upon inquiries of the present occupier and grafter, Mr. T. Wren, I went to see the tree, which I understand was one of a group of three Wyedale Plums. The stems of the trio are only a few inches apart, but are separate to the ground, and have evidently sprung from one root stem, probably that of an old tree of the same kind. The stems of the Plums are clearly those to the base, as they are emitting suckers freely; but whilst that upon which the Apple has been worked indicates its Plum origin at the base it does not produce suckers, and the bole gradually loses its Plum bark upward until it entirely disappears in that of the Apple some distance below the junction of stock and scion. The point of union is still clearly indicated by the bark, and the only visible effect has been to gradually increase the stock, it being somewhat stouter than those of the Plums, and to cause it to assume the character of the bark and wood of the scion.

The only question is, Is it really a Plum stock? The appearances all go to verify the statement of the operator—viz., that it was a Plum and bore Plums like its two companions until it was grafted with the Apple, which was done out of that youthful inclination for trying experiments often leading to unexpected results. It was grafted late in the season, had leaves and Plums on when headed, and has borne for many years crops of Apples, and promises an abundant crop this season. When I saw it the pink blossoms were showing amid the snowy white of the Plums. It is worked at about 7 feet from the ground, and gives no indications of shoots on the stem below the junction. The tree is in apparent health, but for its age is comparatively small, yet somewhat larger than its Plum companions. The variety of the Apple is Holland Pippin, one of the best and most certain in elevated localities; the Plum (Wyedale) being one of the best late, and certain cropping varieties for culinary purposes.—G. ABBEY.

SYCAMORE GROWING IN A LABURNUM.—On being shown over the grounds attached to Merlin, near this town, a few days since,



by Benjamin Fayle, Esq., I noticed the curious circumstance of a Sycamore growing out of the centre of a Laburnum. There was no soil nor vegetable matter nor any other feeding material visible to support it, and there seemed no tangible explanation, except that the seed ("key") fell there, grew, and that the roots are now indebted to the sap circulation of the stock for existence. It may be worth the notice of Dr. Hogg and the Rev. G. Henslow. Cases of parasitic growth on tree-decay are common, but this is different.—W. J. M., *Clonmel*.

[We suspect this is not a true parasitic growth.]

## ROYAL HORTICULTURAL SOCIETY.

GREAT SUMMER SHOW, JUNE 3RD TO 7TH.

PRESUMABLY with the view of embracing the Whitsuntide holidays, and affording the great populace of London and its environs an opportunity to visit the Show, the opening day was changed from Tuesday to Friday, the Exhibition continuing over Sunday till Tuesday night. Whether the change has proved as advantageous as was anticipated we are not able to say; but it may be said that five days appeared to be considered too long by some of the trade exhibitors, for Messrs. Veitch & Son did not show at all, Mr. W. Bull only staged two collections of twelve plants each, and Mr. B. S. Williams Orchids, Ferns, and a miscellaneous group, not including his choicest examples, which were either at Holloway or Manchester. Under these circumstances other nurserymen and floral decorators were the more prominent, and they have shown that they possess great and varied collections of popular and valuable plants—even sufficiently so, with the amateurs' collections in competition, to fill the huge marquee and a great portion of a tent 200 yards long. The General Horticultural Company sent a collection of great magnitude and merit; Messrs. Laing and Cutbush large and varied groups, the latter including splendidly grown examples of *Erica Cavendishiana*; and the former, with Mr. Coppin, also staging gorgeous groups of Tuberous Begonias; Messrs. Jackson of Kingston and Peed of Norwood sent magnificent stove and greenhouse plants; Mr. George Paul contributed gigantic Roses, and Messrs. Osborn, Barr, and Ware sent fine herbaceous and alpine groups, while Messrs. Dick Radcliffe & Co. and Mr. Aldous contributed materially to the effect of the Exhibition. Amongst cut flowers Mr. Turner exhibited very fine stands of Roses, Messrs. Veitch of Exeter a grand box of the old *Devoniensis*, and Messrs. Kelway and Ware Pyrethrums, the single varieties almost causing a sensation, and kept the attendants busy booking orders. Among the amateurs' collections Mrs. Torr's Azaleas were of remarkable merit, Mr. Warren's *Gleichenias* were superb, and Mr. Whitbourn's Orchids finer than ever. Thus were the tents filled, and they were even brighter than usual, flowering plants predominating where before fine-foliaged plants have often been in overpowering numbers; in fact, on this occasion more of large Palms and Ferns were almost needed as a foil to the dense masses of colour. Fruit—except some of the prize collections of Grapes, Lord Brownlow's Bananas, Lord Fortescue's Pines, Lord Carrington's Cherries, the Marquis of Salisbury's Strawberries, and the Melons and Cucumbers in competition for Messrs. Sutton & Son's prizes—was not remarkable. Vegetables were good, the winning collections fine, and the display of implements, &c., outside was the most extensive that has ever been seen in the gardens. The weather on the first two days was brilliant—hot, and the company, on Friday especially, was brilliant too. On Monday heavy showers fell at intervals, and Tuesday was dull and wet generally. This sudden change must have materially limited the attendance; but the rain has been of far more benefit than all the shows to a parched land.

### STOVE AND GREENHOUSE PLANTS.

The liberal encouragement given to growers and exhibitors of these plants was cordially and freely responded to by gardeners and nurserymen, and as a result visitors were gratified by a large and satisfactory display of well-grown specimens, representing all the chief species and varieties usually included in such collections. In the three classes provided a total sum of about £90 was offered in nine prizes, for which there appeared ten competitors, who staged nearly one hundred specimens, mostly characterised by admirable freshness, symmetrical training, and abundance of flowers. The principal class was for twelve plants in flower, and was open to all exhibitors. Messrs. T. Jackson & Son, Kingston, Surrey, had a particularly strong and meritorious collection, easily securing the coveted premier award. The Kingston specimens are well known at the early summer shows, but the most noteworthy may be briefly indicated for the advantage of those who have not had the pleasure of seeing them. That almost indispensable plant in such classes, *Dracophyllum gracile*, was represented by a specimen 4 or 5 feet across, very evenly trained in a globular form, and flowering profusely; *Pimelea mirabilis* was of similar dimensions, and equally excellent in other respects; a large example of *Azalea Grand Crimson* had a great number of fine brilliantly coloured flowers; *Hedera tulipifera*, a symmetrical glope-shaped plant bearing numerous blooms; *H. fuchsoides*, not so large but very neat; *Clerodendron*

*Balfourianum*, *Aphelexis macrantha purpurea*; *Azaleas* Criterion and Model, with three handsome Heaths—*Erica ampullacea*, *E. Cavendishiana*, and *E. Lindleyana*, completed the collection. The excellent even training of these plants was especially noteworthy and merited the admiration they received. The second prize was adjudged to Mr. E. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, for plants of considerably more than ordinary merit generally, but perhaps a little deficient in the symmetry which formed such an important feature in the preceding group. *Anthurium Schertzerianum*, 5 or 6 feet in diameter, had about forty spathes very large and brightly coloured, the health of the plant also being remarkable. An *Erica Cavendishiana* of extraordinary size was in excellent condition and bearing very large flowers. *Erica ventricosa* was also represented by a beautiful specimen, and several other good examples of cultural skill were contributed. Messrs. B. Peed & Son, Lower Streatham, were third with rather rough and small plants compared with the others, but *Allamanda grandiflora* was well shown, both foliage and flowers being fine.

For eight plants from nurserymen the last-named exhibitors were placed in the chief position with a satisfactory collection, including several handsome plants, of which the best were *Statice profusa*, 5 or 6 feet in diameter, unusually vigorous, and bearing numerous trusses of the rich blue flowers distinguishing the species. *Erica affine* was another notable plant, compact in habit, the light yellow flowers contrasting strikingly with the dark green foliage. *Allamanda grandiflora*, *Aphelexis macrantha purpurea*, and *Azalea Juliana* formed the other chief features of the group. Messrs. Jackson & Son followed closely with neat specimens, similar to those in the previous class, but smaller and scarcely so well flowered; while Messrs. J. Peed & Son, Ronpell Park, were third, staging among others a well-grown *Franciscea calycina* major with abundance of its large rich purple flowers. In the class corresponding to the last, but appropriated to amateurs, the principal honours were adjudged to Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, who staged some good examples of the most popular exhibition plants, such as *Bougainvillea glabra*, very large, and trained in a globular style; *Erica Cavendishii*, healthy; *E. depressa*, vigorous and informal; *Hedera tulipifera*, even; and *Aphelexis macrantha*, neat, besides others but little inferior to those named. Mr. Tudgey was a good second, his plants though small being very neat; and Mr. Watson, gardener to D. Martineau, Esq., Clapham Park, was third with clean specimens.

### AZALEAS.

Three classes were also devoted to greenhouse Azaleas, which formed an important portion of the display in the large tent, as in two of the classes the competition was fairly close and interesting, the specimens shown in the winning collections being especially remarkable for the profusion of their flowers and the brightness of the colours; indeed, such glowing masses of colour were contributed that in some portions of the tent a few additional fine-foliage plants would have added considerably to the effect by toning the brilliancy of the Azaleas; but though the former were not forthcoming in sufficient numbers very great care was taken in their arrangement, and with admirable results. In the class for eight distinct Azaleas from nurserymen there were four entries, but only two exhibitors appeared—namely, Messrs. T. Jackson & Son and B. Peed & Son, who were respectively awarded the first and third prizes. The premier collection included very neat examples, the varieties best represented being Bernhard Andreas and the well-known exhibition kinds *Souvenir de Prince Albert* and *Duc de Nassau*, all flowering freely. In the other group the plants were mostly small and of irregular form, but in moderately good condition as regards flowers. The corresponding class for amateurs was well filled, four competitors appearing. Mr. J. Child followed up the success he has this year attained at several other exhibitions by securing the chief honours for the large handsome Ewell specimens, which were in excellent form, and were greatly admired. The varieties *Cedo Nulli*, *Barclayana*, *Reine des Belges*, *Model*, and *Sir Charles Napier* were first-rate, not only in general health, but also in the size and numbers of their flowers. Following closely came Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, who staged his tall pyramidal plants in fair condition, but some were slightly rough and deficient in flowers. *Juliana* and *Giganteaflora* were, however, noteworthy, and produced a telling effect in the group. Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was third, but with the exception of *Apollo*, which was uncommonly bright, the plants do not call for special comment. The competition in the open class for fifteen plants in pots not exceeding 12 inches in diameter was keen, five exhibitors entering the lists. The much-desired first position was adjudged to Messrs. T. Jackson & Sons for even, healthy, globular-trained specimens of well-selected varieties, among which the following were notable:—*Comte Baudouin*, with bright rose-coloured spotted flowers; *Antoinette Thelemann*, a rich red-flowered variety; the deep red *Mons. Keteleer*, the pink-striped double *Mlle. Marie Van Houtte*, with Bernhard Andreas, Jean Verschaffelt, and *Souvenir de Prince Albert*. Mr. C. Turner of Slough was second with small but beautiful plants, as usual bearing remarkably fine flowers, richly or delicately coloured according to the character of the variety. Many excellent varieties were represented, such as *Souvenir de M. R. Abel*, *Mons. Thibaut*, *Roi d'Holland*, *Cordon Bleu*, and *Mlle. Marie le Febvre*, the latter a handsome form, with very large pure white

flowers. Mr. Ratty secured the third prize with small but fairly well-flowered specimens.

#### ERICAS.

Although Heath and hardwood plants do not now receive a tithe of the attention accorded them some years ago, there are still growers and exhibitors of these once popular plants, and the three collections staged in the single class devoted to Ericas at Kensington proved that the skill demanded to obtain them in good condition has by no means been lost. Messrs. T. Jackson, long renowned for such plants, were easily first with clean, healthy, even, and well-flowered specimens, among which *E. tricolor* Wilsoni and *speciosa*, *E. Lindleyana*, *E. Spenceriana*, *E. affine*, *E. ventricosa coccinea minor*, and *E. v. tinctoria rubra* were particularly fine. Mr. Tudgey, who was second, also had several handsome examples, *E. ventricosa magnifica*, *E. mirabilis*, and *E. Cavendishiana* being the most striking. Messrs. B. Peed & Son were third with decidedly the least satisfactory plants, but including an *E. ventricosa magnifica* in good condition and very evenly trained.

#### ORCHIDS.

No summer exhibition of any importance is now complete without one or more classes for Orchids, and when these are moderately well filled they generally form one of the most attractive portions of the display. The interest in these beautiful and peculiar plants so far from diminishing seems to be fast increasing, and on Friday last there was scarcely any part of the Exhibition more crowded throughout the day than that where the Orchids were arranged. Three classes were devoted to them, and eight collections were staged of varying degrees of merit, but as regards clean healthy growth they were all satisfactory and some were extremely fine. The chief class as regards the value of the prizes offered was the open one for fifteen distinct species or varieties, in which £20, £15, and £10 were the first, second, and third prizes respectively. Only two exhibitors, however, staged collections, and these, though both of great excellence, varied considerably in merit and occasioned some discussion. Mr. H. James, Castle Nursery, Lower Norwood, was placed first with fine masses forming a beautiful display of flowers, but chiefly what are known as "made-up" specimens—i.e., several smaller plants placed together in one pot. As masses the collection clearly surpassed the other, but in other respects some doubts were expressed as to their relative merits. Mr. James's plants included the following:—*Odontoglossum vexillarium*, with eight spikes of highly coloured flowers; *Cypripedium niveum*, very pretty, with two dozen neat flowers; *Epidendrum vitellinum majus*, with about thirty-six spikes of brilliantly coloured flowers; *Phalenopsis grandiflora* had fairly large flowers; *Oncidium ampliatum* bore five large spreading panicles; *Oncidium concolor* was fairly represented, the plant having thirteen spikes; *Cattleya Mossiae* bore fifteen moderately good flowers; *Aerides Fieldingi* had five spikes; and the other Orchids of less merit were *Lælia purpurata*, *Odontoglossum vexillarium*, *Masdevallia Veitchiana*, *Dendrobium chrysotoxum*, *D. nobile*, and *Cypripedium barbatum giganteum*. The second position was secured by Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, Essex, who had very handsome healthy specimens which some experienced Orchid growers and judges considered equally as meritorious as the first-prize group, the majority of the specimens being single plants very well grown. Among the most noteworthy examples were *Dendrobium Dalhousianum*, with a dozen spikes of its large and peculiar buff-coloured flowers; *D. nobile*, of great size, about 5 feet in diameter and profusely flowered, a well-known specimen; *Cattleya Warneri*, a remarkably handsome variety, with soft purple broad petals and sepals and a rich crimson lip; *Odontoglossum hastilabium*, with three handsome panicles of flowers; *O. Roezlii album*, and *O. vexillarium*, similarly fine; *Calanthe veratrifolia*, bearing five tall handsome spikes of white flowers; *Anguloa uniflora superba*, a fine variety of a distinct species, with creamy coloured sepals and pink-streaked petals, presenting a strange contrast with *Anguloa Clowesi*, also shown. The other most notable plants were *Dendrobium thyrsiflorum*, with five large dense spikes of flowers; and a fine variety of *D. Wardianum*, with two growths each bearing ten flowers.

There were three competitors in the amateurs' class for ten Orchids, Mr. Child being awarded the chief prize for a similar collection to that accorded the same honours at the recent Crystal Palace Show. The most remarkable plant it contained was *Vanda suavis*, with four growths about 5 feet high and bearing half a dozen spikes of flowers. *Odontoglossum citrosmum* had five panicles of flowers, and *Aerides Fieldingi* had a similar number and was in fine condition. Mr. Salter, gardener to J. Southgate, Esq., Selborne, Leigham Court Road, Streatham, followed closely with healthy plants, and Mr. J. Douglas was third with a good collection. In the corresponding class for nurserymen Mr. B. S. Williams, Upper Holloway, secured the principal prize with a good selection of valuable species and varieties, the plants being healthy and flowering well. Some of the most noteworthy specimens were *Dendrobium suavisimum* with a dozen or more fine spikes of bright yellow flowers. *Lælia purpurata* was represented by a good variety, the lip of the flowers being particularly richly coloured. *Epidendrum vitellinum majus* and *Cypripedium barbatum superbum* were of great excellence, and the very distinct *Dendrobium Jamesianum* was also in good condition, among many others of considerable beauty. Mr. James was placed second, and Messrs. Jackson & Son were third, both with fair collections.

#### NEW PLANTS.

Two classes were devoted to new plants, one for twelve sent out in 1880-81, and the other for twelve not in commerce. In each only one exhibitor appeared—Mr. W. Bull of Chelsea, who was accorded the two chief prizes. In the first-named class the following plants were shown:—*Dracæna Lindenii*, very distinct, with recurved leaves 3 or 4 inches broad, with yellow margins and a green central band; *Davallia fijiensis*, a pretty dwarf Fern with bright green finely divided fronds a foot broad and 15 inches long; *Asparagus plumosus*, very elegant, with dark green filiform leaves arranged in a feathery manner, as the name implies; *Anthurium Andreanum*, so well known now that it does not need description: the plant shown had three spathes; *Dieffenbachia Leopoldi* and *D. triumphans*, two new forms of Dumb Cane, the former having dark green leaves and a white midrib, the latter very dark green spotted with white and yellow; and *Aralia spectabilis*, leaves pinnate, 4 feet in length, pinnæ 6 inches long. The following, which have been referred to in this Journal at various times, completed the collection:—*Adiantum aneitense*, *Philodendron Carderi*, *Anthurium insigne*, *Croton formosus*, and *Juncus zebrinus*. In the class for plants not in commerce the following were shown:—*Illicium religiosum variegatum*, a variegated form of the Star Anise, the leaves being margined and flaked with white; *Deyoukia elegans variegata*, an attractive plant with linear, grass-like, narrow drooping leaves, dark green with clearly defined margins of yellow; *Croton insignis*, leaves a foot long and 2 inches broad, green veined with yellow and crimson: very bright and pretty; *Aralia concinna*, leaves pinnate, 1 foot to 1½ foot long, pinnæ 5 inches long and deeply cut; *Sansevieria flabellata*, a peculiar plant with cylindrical dark greyish green leaves like *S. cylindrica*, but channelled on the upper surface and arranged in a fan-like manner; *Dieffenbachia regina*, compact in habit, with elliptical leaves white or light green sparsely mottled with dark green; *Geonoma Bluntii*, a handsome Palm with pinnate leaves 4 feet long, the pinnæ irregular in size and of a peculiar green tint; *Selaginella involvens variegata*, one of the caespitose type, slightly variegated; *Dracæna Pacotti variegata*, leaves tapering, slightly streaked with yellow and green; *Sarracenia flava splendida*, distinguished by large pitchers, the upper part and lid yellow veined with red; *Alsophila tænitis*, fronds bipinnate, dark green; and *Dieffenbachia rex*, a distinct form with large leaves irregularly marked with dark green and yellowish white.

MR. W. BULL'S PRIZES.—The successful exhibitor in the two preceding classes as usual offered prizes, consisting of silver cups valued at fifteen to six guineas, in three classes, each for twelve new plants introduced and sent out by himself since 1878. In the amateurs' class two collections were staged by Mr. T. N. Penfold, gardener to Canon Bridges, Croydon, and Mr. W. Selway, The Gardens, Knight's Hayes Court, Tiverton, who were adjudged the first and second prizes respectively. Mr. Penfold's plants were in fine healthy condition, the following being those shown:—*Carludovica Drudei*, *Croton Chelsoni*, *C. roseo-pictus*, *C. gloriosus*, *Cyphomandra argentea*, *Asparagus plumosus*, *Dieffenbachia splendens*, *D. Leopoldi*, *Davidsonia pruriens*, *Selaginella Kraussiana aurea*, *Calyptronoma Swartzii*, and *Ixora profusa*. Mr. Selway also had vigorous examples of attractive plants similar to those enumerated above, but the following were distinct:—*Croton Williamsii*, *C. princeps*, *C. Challenger*, *Anthurium insigne*, *Encephalartos Frederici-Guilielmi*, and *Sarracenia flava ornata*. The only other exhibitor was F. Yates, Esq., Higher Feniscowles, Blackburn, who entered in the class for amateurs that have not previously won any of these cups. He was awarded the chief prize for small but neat specimens of the following in addition to those already mentioned:—*Lastrea aristata variegata*, *Croton elegantissimus*, *C. formosus*, *Adiantum aneitense*, *Davallia fijiensis*, *Juncus zebrinus*, *Asparagus plumosus*, and *Dieffenbachia Shuttleworthii*.

#### FINE-FOLIAGE PLANTS.

In the one class appropriated to fine-foliage plants four good collections were staged, all by amateurs in accordance with the stipulation of the schedule. The premier group of eight plants was contributed by Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, who as usual had some remarkably handsome plants. An example of *Croton interruptus*, 7 feet high, as much in diameter, and finely coloured, was the chief feature; but several others were also notable, especially *Croton Andreanus*, also of great size and in most vigorous condition, the leaves being very large and beautifully variegated with yellow; *Areca sapida* was about 12 feet high; the distinct and noble *Pritchardia pacifica*, with *Thrinax elegans*, *Dasyllirion acrotrichum*, and *Croton variegatus* being in first-rate form. Following closely was a collection from Mr. T. N. Penfold, including large and healthy specimens of *Croton Hendersonii*, *Cycas nobilis*, and *Spathiphyllum pictum*. Mr. Tudgey was placed third, also with good plants, several Palms, a *Cycas revoluta*, and a *Croton Queen Victoria* being the best. A class was also provided for a group of one hundred fine-foliage plants, but there was only one exhibitor—Messrs. Hooper & Co., Covent Garden, who were awarded the principal prize for a good collection of healthy *Dracænas*, *Yuccas*, *Pandanus*, Palms, and Ferns.

Ferns.—There was not a large display of Ferns, but in the amateurs' class for six specimens there were four entries, and the quality of the plants exhibited was very satisfactory. The best collection was contributed by Mr. C. Rann, the plants composing it, as in the fine-foliage



class, being noteworthy for their size. The three fine *Gleichenias*, which are so well known to frequenters of large metropolitan flower shows, were in excellent condition, being well furnished with young vigorous fronds; *Cyathea Dregei*, *C. Burkei*, and *Dicksonia antarctica* being also large and healthy. Mr. Child was a very close second; for although his plants were smaller than the first-named they were very neat, and could scarcely be excelled in freshness and vigour. *Phlebodium aureum*, 5 feet in diameter, had the fine characteristic glaucous tint well developed. *Microlepia hirta cristata* was similarly fine; and *Davallia Mooreana* was well represented. Mr. Douglas was third, staging good examples of *Gleichenias* and *Davallias*. The only nurseryman's collection was from Mr. B. S. Williams, who secured the first prize for specimens of medium size, but in clean vigorous condition. *Gleichenia flabellata* and *G. circinata*, with *Asplenium nidus*, were the most striking in the group.

#### GROUPS.

In every exhibition of more than ordinary extent the groups, whether arranged for effect or simply collections of plants, invariably constitute an important and attractive feature, the absence of which would detract considerably from the interest and completeness of the display; therefore it was satisfactory to see them so well represented at Kensington, where seven large and more or less handsome collections were contributed in the two classes devoted to them—namely, that for one hundred miscellaneous plants in bloom, and that for a group of the same number of plants in pots arranged for effect in a space not exceeding 300 square feet. The former were especially bright, and the premier collection from Messrs. B. Peed & Son was very greatly admired, as, though the plants were of moderate size, they were in excellent condition and flowering abundantly. All the principal useful and easily grown Heaths were represented by compact little specimens, plants of *Erica perspicua nana*, a neat dwarf variety that is much grown for market, being numerous. Many other greenhouse and hardwooded plants were also represented, *Pimeleas*, *Aphelaxes*, and *Azaleas* being shown in large numbers and vigorous health, while some small specimens of *Phœnocomia Barnesii* were noteworthy for their fresh healthy appearance. Messrs. Jackson and Son were second with a similarly bright group which, in addition to a large proportion of hardwooded plants, contained many well-grown *Pelargoniums* and *Orchids*. Messrs. Cutbush & Son were placed third with a neat group, in which *Dracophyllum gracile* and *Genetyllises* were largely shown in first-rate condition, and all the numerous other greenhouse plants included were flowering freely.

For the most effective group four competitors appeared, and though their contributions were diverse in style they were so nearly equal in merit that the Judges had not an easy task in determining their relative positions. Chief honours were, however, bestowed upon Mr. J. Aldous, Gloucester Road, South Kensington, who had a tasteful and attractive arrangement, though it was open to the objection of the smaller plants being rather too crowded. What may be termed the groundwork of the group was chiefly composed of *Fuchsias*, *Pelargoniums*, *Calceolarias*, and small Ferns, the effect being lightened by taller plants of *Lilies*, *Eucharises*, *Dracænas*, and *Palms* too regularly disposed over the group. The margin consisted of an outer line of variegated *Pelargoniums*, next to which was a border of *Caladium argyrites* alternate with small *Dracænas* and the white-flowered *Crassula jasminea* recently described in this Journal. Messrs. J. Laing & Co. followed with a less formal arrangement but rather weak in flowering plants, though *Rhodanthes*, *Gloxinias*, *Azaleas*, and *Spiræas* were freely employed. *Palms*, *Ferns*, and *Dracænas* were interspersed among the other plants, but chiefly formed a bold background. The third position was accorded to Messrs. Cutbush & Sons for a totally different group from the previous two, and if something better than the rather brown-coloured moss had been substituted for the groundwork it would probably have obtained a higher position. It was arranged on a sloping mound in one corner of the tent in a similar style to that shown by the same firm at the Royal Botanic Society's last Exhibition. At the back was a semicircular band of *Cordylines*, variegated *Maples*, *Azalea Souvenir de Prince Albert*, and *Abutilon vexillarium variegatum*; the ground thus enclosed being covered with moss, from which arose wooden stands supporting small Ferns, the base of each being surrounded by *Chrysanthemum frutescens* and other plants. But most notable in the group were the plants of *Erica Cavendishiana*, which though young were extremely vigorous, the branches being thickly clothed with unusually large richly coloured flowers. The largest specimens were in 8-inch pots, but smaller sizes were employed for the majority.

#### ROSES.

Although three classes were devoted to *Roses*, and liberal prizes were offered, only two exhibitors came forward; but the Cheshunt contributions were extremely fine, and thus compensated to some extent for deficiency in other respects. In the nurserymen's classes for twenty *Roses* in 10-inch pots and nine specimens, the size of pot unstipulated, Messrs. G. Paul & Son were the sole exhibitors, gaining the premier award in each. These specimens formed an imposing group on the slope near the chief entrance to the large tent, where their beauty could be seen to excellent advantage. The central plant of the large specimens was *Céline Forestier*, which has already been noticed several times this season: it was in fine condition, the foliage fresh and the blooms numerous. *La France*, too, was unusually fine

and well furnished with handsome blooms. Charles Lawson, Marie Rady, Anna Alexieff, and Francis Fontaine, all large and beautiful, also served to render the group one of the chief attractions of the Show. The smaller plants were arranged to form a margin to the others, and were in excellent health, bearing fine substantial blooms. Some of the varieties best represented were Mrs. Laxton, Abel Grand, François Michelin, Miss Ingram, and Camille Bernardin. Mr. Tranter, Upper Assenden, was the only amateur exhibitor, and gained the third prize for rather poor plants, which had evidently suffered considerably in their carriage to the Show.

#### PELARGONIUMS.

Admirers of Show and Fancy *Pelargoniums* would perhaps have desired their favourites to be more largely represented than was the case at this Show, but after making due allowance for the fact that it is still rather early in the season for these plants, the three chief collections staged were fairly satisfactory. Both classes were open, and in each nine specimens were required. Show varieties were represented by three collections, the best being that shown by Mr. J. Wiggins, gardener to H. Little, Esq., Uxbridge, in which the plants were very even, well grown, and carefully tied, the flowers being large and of excellent form. The beautiful varieties *Kingston Beauty*, *Rob Roy*, *Princess Alexandra*, and *Mary Hoyle* were especially vigorous and notable for the profusion of their flowers. Mr. C. Turner followed very closely with specimens little inferior to the preceding, the only observable deficiency being a slight degree of looseness and rather too prominent stakes. *Claribel* was admirably shown, *Emperor* and *Prince Leopold* being similarly beautiful. Mr. W. Griffin, gardener to J. Willcocks, Esq., Forest Hill, was third with small and rather rough specimens. In the class for Fancy varieties there were only two competitors, Mr. Wiggins easily securing the first prize with fine healthy plants flowering most freely, and including some very pretty varieties, of which the most noteworthy were *Lady Carrington* with neat flowers, pink and white, a delicate and charming variety; Mrs. Graham also very beautiful, the upper petals rich rosy pink, the lower white, flower large and of excellent form. *Princess of Teck*, *Ellen Beck*, and *Duchess of Edinburgh* were all handsome. Mr. Griffin was accorded the third prize for plants similar in quality to those in his other collection.

*Tuberous Begonias*.—For thirty *Tuberous Begonias* of not less than twenty varieties Messrs. J. Laing & Co., Forest Hill, staged a handsome collection of well-grown plants, representing many fine varieties, which well merited the premier prize that was awarded for them. One noteworthy feature of the group was the comparative small size of the pots employed, the largest not exceeding 8 inches in diameter, and as the plants were strong this imparted a light appearance to them which is too often wanting, excessively large pots being for these, as for other plants, not only injurious but far from ornamental. The flowers were generally of good size and fine colours, but in several instances the effects of travelling were observable. Some of the most effective varieties were *Robusta*, brilliant scarlet, large flower; *Lady Roberts*, soft scarlet; *Stanstead Rival*, salmon scarlet, very large well-formed flower; *Annie Laing*, a handsome pink variety of great substance, one of the best of its colour; *Miss Muir*, white tinged with pink, delicate; *Commodore Foot*, a dwarf compact form of the *Pearcei* type, with small but intensely dark scarlet flowers very freely produced; *Marquis of Salisbury*, a fine flower of a peculiar brilliant crimson tint; *Madame Huibelle*, bright salmon, very large; and *Pollie*, a good yellow variety. Mr. H. Coppin, Shirley, Croydon, was the only other exhibitor, and obtained the second prize for creditable plants, which were, however, in rather large pots. The varieties *Rêve d'Or*, yellow; *Orion*, soft scarlet; W. E. Gladstone, brilliant scarlet; *Salmon Queen*, and *Snowflake*, white, were some of the best, the blooms being single and of excellent form.

*Gloxinias*.—These were not largely shown, which is rather surprising, as they are so extensively grown. It is true they suffer considerably in transit to exhibitions, and often a promising collection at starting has a very different appearance when the plants reach their destination, but the prizes offered—namely, £4, £3, and £2, for thirty specimens might have been considered sufficient to encourage growers to compete. The chief collection was exhibited by Mr. T. Lyon, gardener to Sir E. H. Scott, Sundridge Park, Bromley, who had some well-grown plants bearing large flowers, particularly remarkable for the richness of the colours. Mr. W. Griffin was second with small examples. With the exception of the first-named collection, the best *Gloxinias* were in some of the groups and miscellaneous collections.

*Rhododendrons*.—In the class for twenty specimens Messrs. H. Lane & Son, Berkhamstead, contributed a fine group of these handsome plants, which on one of the mounds in the large tent produced an imposing effect. The plants were very compact and bore abundance of large trusses of flowers, the varieties being distinct and well selected for arrangement. Some of the most telling were *Lady Eleanor Cathcart*, soft salmon pink, neat truss; Mrs. John Waterer, bright clear pink; *Sidney Herbert*, mauve purple; Mr. J. Clutton, white; *Joseph Whitworth*, deep purplish crimson; *Exquisite*, white; *Sir Robert Peel*, rich crimson; and *Fastuosum flore-pleuro*, the peculiar lilac-coloured loose-trussed variety. Messrs. G. Paul and Son, Cheshunt, were second with tall standard plants of good varieties.

*Hollies*.—Messrs. W. Cutbush & Son, Highgate, were the only exhibitors of fifteen *Hollies*, and were awarded the principal prize for a



good selection of varieties, the plants being about 5 or 6 feet high, and the distinctive variegation fairly well developed. The most noteworthy were aurea regina, grandis, argentea marginata, Hodginsi, the useful dark green strong-growing variety for towns; angustifolia argentea marginata, media picta aurea, the silver Hedgehog, ferox argentea, Wateriana, Handsworthensis variegata, and Scotica, with very dark green smooth-edged leaves.

**Hardy Plants.**—Popular as hardy plants are now becoming, they do not at present rank very generally among exhibition plants, though at some of the northern shows the competition is often spirited and interesting. When several good collections are staged there is scarcely a more pleasing portion of an exhibition, owing to the diversity in their habits, flowers, and general appearance. At Kensington Mr. Douglas contributed the only collection of thirty hardy plants in pots, for which the second prize was awarded, but the Judges could scarcely have erred had they accorded it premier honours, considering its quality and the absence of any other competitors. Aquilegias were as usual very fine, the other chief plants being *Stenactis speciosa*, an elegant plant with Aster-like purplish or lilac flower heads; *Erigeron strigosus*, another ally of the Asters; *Lupinus bicolor*, flowers blue and white, very pretty; *Pyrethrum Gloire de Stella*, bright crimson; *Verbascum phœniceum*, with cream-coloured wax-like flowers; and *Spiræa palmata*, with its fine feathery trusses of rosy flowers.

**Cut Flowers.**—Two classes were appropriated to cut flowers, one for a group of hardy flowers in bunches, and the other for sixty blooms of Fancy Pansies, not more than two of each variety. In the first-named the only collection staged was from Messrs. Hooper and Co., who secured the chief award for fair examples of the scarlet Larkspur (*Delphinium nudicaule*), the pale yellow Globeflower (*Trollius europæus*), the large white-flowered Candytuft (*Iberis Tenoreana*), the Edelweiss (*Gnaphalium Leontopodium*), and others of less note. The best Pansy blooms were exhibited by Messrs. J. Cocker & Sons, Sunny Park, Aberdeen, who were placed first. The blooms were mostly of good size and substance but rather rough, the colours rich, and the varieties well selected. The third place in the same class was accorded to Mr. J. Lawrence, gardener to Mrs. O. Knox, Caversham, for neat blooms, but many of them much too small.

#### MISCELLANEOUS EXHIBITS.

These were numerous, and imparted much interest to the Exhibition, being chiefly contributions from nurserymen, generally of excellent quality, whether plants or flowers. At the end of the large tent, and facing the principal entrance, was a handsome group from the General Horticultural Company arranged in Mr. Wills's artistic manner, for which a gold medal was deservedly awarded. The background was composed of large Palms, the fore part of the group being occupied with a ground of Selaginellas and Adiantums, among which were fine Gloxinias, Odontoglossums, a central plant of *O. vexillarium* bearing large deeply coloured flowers, Caladiums, *Crassula jasminæa*, Tillandsias, Yuccas, the finely variegated form of *Cyperus laxus*, and the drooping Maidenhair Fern *Adiantum Bausei*. Several small Nepenthes were elevated on stands, while Crotons, Dracenas, and the elegant Pavetta borbonica also contributed to the beauty of the group. Most of the other collections that were not for competition were arranged in the long tent with the exception of ten boxes of fine Rose blooms from Mr. C. Turner, four remarkably well-grown Adiantums from Mr. Hawkins, florist, Bishop's Road, W., for which a bronze Banksian medal was awarded, and a plant of the fragrant *Philadelphus mexicanus* from Mr. Walker of Thame. Silver Banksian medals were awarded to the following exhibitors:—Messrs. B. S. Williams for a group of new and choice plants, chiefly fine-foliage plants, the new Ferns *Pteris internata* and *Actinopteris radiata australis* being especially noteworthy; Mr. C. Turner for a group of new Pelargoniums, Azaleas, and Carnations. A white single Azalea named Franklin was particularly noteworthy, the flowers being large and of symmetrical form. Pelargonium Martial, recently certificated, was also striking. E. J. Loder, Esq., 42, Grosvenor Square, for a collection of hardy Cacti which he had collected. Many varieties of *Opuntia*, *Echinocereus*, and *Pilocereus* were represented, several flowering; and to Messrs. Hooper & Co. for collections of hardy flowers and dried Grasses. A silver Flora medal was secured by Messrs. Barr & Sugden for groups of hardy plants and cut flowers; a bronze Banksian medal being awarded to Mr. H. Boller, Kensal New Town, for a large collection of Cacti.

Messrs. Kelway & Son, Langport, Somersetshire, exhibited boxes of double and single Pyrethrums, the single forms being very striking and in a great variety of colours, some being extremely rich, others soft. After the double varieties have had their day these singles will come in, and we shall be surprised if the demand for them does not come soon. A silver Banksian medal was awarded for them. Mr. T. S. Ware, Hale Farm Nurseries, contributed a very handsome collection of Pyrethrum blooms, both single and double, the colours being rich and the blooms large. They were highly commended. Messrs. H. Cannell & Sons, Swanley, also exhibited a stand of Pyrethrums of good varieties, and in excellent condition. Messrs. Osborn & Sons arranged a great collection of alpine and herbaceous plants, remarkable as well for the variety of the species as for attractiveness. *Czaekia liliago major* was very charming, and *C. liliastrium* elegant and stately. The *Cyclobothras* arrested attention, as also did the gorgeous Irises. A silver Banksian medal was awarded. Mr. J. L.

English, Epping, exhibited examples of Fungi, and garden and wild flowers preserved in their natural colours—a most successful instance of floral preservation. Mr. R. T. Veitch of Exeter staged a box of blooms of the old Devonensis Rose, which were magnificent, and as fragrant as fine. Messrs. Dick Radclyffe & Co. had dinner-table decorations, and an ornamental fernery and fountain at the entrance to the large tent. Mr. J. Aldous exhibited some table decorations and an elegant window box, and Messrs. James Cocker & Co. sent a collection of double Polyanthus and Pansies. In addition to these two groups were contributed from the Royal Horticultural Society's Gardens at Chiswick; one comprised a fine collection of Cape Pelargoniums, and the other was very elegantly arranged. *Adiantum gracillimum*, Gloxinias, and numerous plants of *Saxifraga nepalensis* imparting the distinctive features of the group, the tall panicles of the last-mentioned plant being particularly striking.

#### FRUIT.

Considering the number of entries a large display ought to have been provided, but as many failed to keep their engagements this department of the Show was only moderately furnished. The weather for several days immediately preceding the date of the Exhibition was surely bright enough and sufficiently warm for ripening fruit, and as it could have been sent with little expense there must have been some miscalculation in some respect, or the officials would not have been requested to reserve space and then have been put to the inconvenience of occupying it as they could. Notwithstanding, however, the disappointing shortcomings referred to the spread was the best that has been seen this year, and some very creditable examples of culture were staged.

#### PINES.

Four classes were provided for these, but in three of them only was there competition. Twelve fruits were staged, and with the exception of the two fine Smooth-leaved Cayennes from Mr. D. Wilson, gardener to Earl Fortescue, Castle Hill, South Molton, there was no exhibit of striking merit. The crowns of some examples were too large and others too small in proportion to the size of the fruit. In the open class for two fruits the pair above referred to distanced all others; one of these fruits weighed 6 lbs. and the other 6½ lbs. The second-prize pair from Mr. Child, Garbrand Hall, were medium-sized well-ripened Queens—closely followed, however, by a rather smaller pair, perfectly ripened, and with a due balance of fruits and crown, from Mr. Roberts of Gunnersbury Park. In the class for one Queen Mr. Roberts was first with a good fruit; Mr. Sage, Ashridge Park, being second with a plump crownless example, and Mr. Child third with crown enough for two. In the class for any other variety the prizes went respectively to Mr. Miles, gardener to Lord Carrington, for Charlotte Rothschild; Mr. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham, with Prince Albert; and Mr. J. E. Muddell, Moor Park Gardens, Rickmansworth, with Black Jamaica.

#### GRAPES.

**Black Grapes.**—There were six collections in the open class for three bunches of Black Hamburgs, the examples from Mr. Loudon, gardener to T. Barnes, Esq., The Quinta, Chirk, overweighing the others completely. The bunches were very large and full, the berries being excellent and fairly finished. The central bunch apparently weighed about 5 lbs., and the exhibit was greatly and deservedly admired. Mr. Fyfe, gardener to W. W. Dick, Esq., Thames Ditton House, was second with small bunches; and Mr. Phillips, gardener to Capt. Jackson, The Deodars, Meopham, third with rather loose bunches, and the best finished berries in the Show, but small.

For three bunches of any other black variety Mr. Bolton, gardener to W. Spottiswoode, Esq., Combe Bank, Sevenoaks, was an excellent first with remarkably fine examples of Black Prince; Mr. Mowbray, gardener to the Earl of Leven and Melville, Fulmer, Slough, a good second with the same variety.

**White Grapes.**—Mr. Loudon secured the first honours with Muscats; bunches medium, berries fine, but not quite ripe. Mr. Maher, gardener to C. Allhusen, Esq., Stoke Court, Slough, was second with loose bunches. In the Any other white class, Mr. Mowbray secured the foremost place with Buckland Sweetwater of excellent quality; berries very even and good, but bunches not large. Mr. Aslett, gardener to C. Butler, Esq., Warren Wood, Hatfield, was an excellent second with very good Foster's Seedling, but not quite ripe; and Mr. Bolton third with the same variety, also unripe.

#### PEACHES AND NECTARINES.

**Peaches.**—Eight dishes were staged of average quality, but the larger fruits especially were deficient in colour. The first-prize dish from Mr. Crump, gardener to the Duke of Marlborough, Blenheim, was certainly the finest, the variety being Grosse Mignonne. Mr. Hinds, The Gardens, Canford Manor, was a close second with Royal George, very well coloured; and Mr. Lockie, gardener to Lord Otho Fitzgerald, Oakley Court, Windsor, third with apparently Grosse Mignonne.

**Nectarines.**—The first-prize dish of Lord Napier, very fine, came from Mr. Holliday, gardener to J. Norris, Esq., Castle Hill, Bletchingley; Mr. Nash, gardener to Mr. Fuller, New Shoreham, Sussex, being a good second with Stanwick Elruge.

**Cherries.**—Six dishes were staged, the Black Circassians from Mr. Miles being wonderfully fine. This exhibitor easily won the

first prize in both classes. Mr. James Read, Moat Mount, Mill Hill, was second in the class for two dishes, and Mr. Austen, Ashton Court, Bristol, had the same position in the single-dish class.

**STRAWBERRIES.**—These were good, if not grand; yet the first-prize dishes of Sir Charles Napier, Sir J. Paxton, and President from Mr. Norman, The Gardens, Hatfield, were very superior, good in size, brilliant in colour, and in fine condition. The exhibitor uses Clay's fertiliser for Strawberries, and certainly not without effect. The second prize went to Mr. Goldsmith, The Gardens, Hollenden Park, Tonbridge; and third to Mr. Worthing, gardener to A. Moss, Esq., Chadwell Heath, Essex, but the fruits were rather overripe. Mr. Mortimer, gardener to Major Storer, Purley Park, Reading, was first in the single-dish class with President, very highly coloured; Mr. Worthing, second; and Mr. Norman, third, all with President.

**MELONS.**—About thirty fruits were staged, some being large and several handsomely netted; and although most of them were of fair quality, a few were deficient in flavour. Mr. Miles, Wycombe Abbey, was distinctly ahead of his rivals with a fine fruit of Golden Gem, very juicy and delicious; flesh nearly white. Mr. Lockie was second, and Mr. Goldsmith, Hollenden, third, both with Hero of Lockinge.

**TOMATOES.**—Six dishes were staged, all the fruit being highly creditable to the cultivators. The first-prize dish of Stamfordian from Mr. Ward, gardener to the Earl of Radnor, Langford Castle, Salisbury, was very fine. Mr. Bones, gardener to D. McIntosh, Esq., Havering Park, Romford, was second with Acme, very good; and Mr. Austen was a very close third with excellent examples of Orangefield.

**MESSRS. BOYD'S PRIZE.**—For six dishes of fruit, distinct, Mr. L. J. Baker, Haddon Hall, Eastcote, Pinner, was the only exhibitor, staging a very small Pine, medium Grapes, good Figs, a Melon, and Peaches, thus securing the silver cup as easily as any similar trophy was ever obtained.

#### MESSRS. SUTTON & SONS' PRIZES.

There was excellent competition in the class for two kinds of Melons and two of Cucumbers, and splendid produce was staged by a dozen or more exhibitors. The first prize, £5 5s. or a gold medal, was won by Mr. Lockie with almost perfect fruits of Hero of Lockinge and Hero of Bath Melons, and Suttons' Duke of Connaught and their Improved Telegraph Cucumbers. Mr. Mann, The Gardens, St. Vincent's, Grantham, followed, securing the silver medal with a weighty collection, Hero of Lockinge Melon being very fine. Mr. Goldsmith of Hollenden was a good third; Mr. Atkins, Lockinge Park, fourth; and Mr. Howe, Benham Park, fifth. This class formed a fine feature of the Show; it afforded much satisfaction to spectators, and reflected credit alike on Messrs. Suttons and their skilled clients.

**MISCELLANEOUS.**—Mr. Sage, Ashridge, exhibited a magnificent bunch of Bananas, weighing 98 lbs., one of the finest examples of culture that has ever been staged at an exhibition, and a valuable contribution to this section of the Show. A silver Banksian medal was awarded for it. Mr. Wells, Earlswood Nurseries, Redhill, staged good examples of his Improved Telegraph Cucumber; and Mr. Goldsmith exhibited twelve Melons not for competition—a most worthy contribution.

#### VEGETABLES.

Five excellent collections were staged in the class for ten dishes, distinct kinds, and Mr. Austen had the great honour of placing Mr. Miles in the second position. The dishes comprised a splendid bundle of Asparagus, superior Stamfordian Tomatoes, excellent Crook's Walnut-leaf Potatoes, wonderfully fine Vegetable Marrows for the season, very fine Early Munich Turnips and French Beans, and good Carrots, Cucumbers, Peas, and fair Cauliflowers. Mr. Miles, however, followed closely; his best dishes, those that were superior to Mr. Austin's, being Laxton's Unique Peas, Cucumbers, and Carrots, and some others were equal. There was much discussion on the awards, but after a critical examination we considered that Mr. Austen won by two points, and afterwards found that the Judges arrived at precisely the same decision. Mr. Ward, Longford Castle, secured the third prize.

Prizes were offered by Messrs. Sutton & Sons for four dishes of Peas; Mr. Ward, Longford Castle, securing the silver medal with excellent dishes of Ringleader, First and Best, Emerald Gem, and William I. Mr. Chettleborough, Wanstead House, Norwich, having the second prize, a bronze medal, with Dillistone's Improved, Excelsior, William I., and American Wonder, the pods being larger but not so full as the first-prize dishes.

#### IMPLEMENTS AND APPLIANCES.

Under this heading are included horticultural structures, boilers, machines, tents, seats, wirework, engines, pottery, rustic adornments, cutlery, instruments—indeed every requisite connected with the garden. Thus a large field was opened for a great display; and the importance of the department was recognised by the offer of thirty medals, two of gold, and fourteen each of silver and bronze. The response of inventors and manufacturers was commensurate with the inducements offered for their enterprise; and what may be termed the mechanical section, it will be no exaggeration to say, was the most prominent feature of the Show. There have been on the whole finer plants at South Kensington, more and better fruit, and a greater display of vegetables, but never such an extensive, valuable, and varied collection of the nature as the one under notice. The exhibits apparent covered from two to three acres of ground, and the Judges had such

a task in examining them and determining the respective merits of the almost bewildering assortment of articles that they are not likely soon to forget; for Sir Henry Strickland, Bart., Mr. Shirley Hibberd, and Mr. Stevens of Trentham appeared to be engaged the whole of the first day and until noon on the second before they completed their difficult task. Following the order of the classes we commence with

**Garden Cutlery.**—The old and eminent firm of Messrs. Saynor, Cooke, & Ridal of Sheffield easily won the silver medal with an extensive assortment of knives and edge tools of all descriptions, highly finished and artistically arranged. The Standard Manufacturing Company, Derby, also exhibited a new fruit-gatherer, which is extremely light, and severs the fruit from branches which cannot be reached by ladders and collects it into a net. The mechanism of the implement is very satisfactory. A certificate of merit was granted. The bronze medal did not appear to have been awarded.

**Pottery.**—The Judges had no difficulty in this class, for a glance was sufficient to show that the exhibit of Mr. John Matthews of the Royal Pottery, Weston-super-Mare, overpowered all others, and the silver medal was awarded to a multifarious assortment of articles, useful, durable, and artistic, including flower pots of all sizes, vases, window boxes, rustic ornaments, plant protectors, indeed about everything of service in the garden that is wrought by the potter's skill. Messrs. Dick Radclyffe showed useful articles in this class, as also did Messrs. Doulton & Co. of Lambeth, whose window boxes especially we thought deserving of official recognition. They were not only of good appearance and durable, but were made in sections of about 6 inches square, any number of which placed together forms a continuous box, apparently in a solid piece; thus, a sill of any size can be furnished, or a number of separate square pots be utilised.

**Garden Tools.**—Messrs. Nettlefold & Sons, High Holborn, London, were successful in securing the silver medal with a large and varied collection of articles for almost every purpose of the garden, strong, well finished, and of excellent quality, including the Coventry lawn mower, which appears strong, simple, and durable; hose reels, water barrows, rollers, &c., besides hand tools of all kinds, and capital mat, garden, and hall scrapers—a collection of great utility. Mr. Thornton, Turnham Green, was awarded the bronze medal for a varied collection of garden tools of approved pattern, strong, handy, and well finished, such as find favour in a great and critical market-gardening district. The standard tree pruner of the Standard Manufacturing Company was exhibited in this class; the manager brought a large tree to operate on, and was able to show highly satisfactory work. A certificate of merit was awarded to this implement, which was figured in our columns, vol. xxxvii., page 172.

**Wirework.**—Of this the display was very extensive and of great excellence. The silver medal was secured by Messrs. J. J. Thomas and Co. of Edgware Road, London, for splendid examples of workmanship, including flower stands and baskets, trellises of all forms and sizes, arches, bordering, fencing, aviaries chaste in design and of various sizes, with numerous other articles which combined ornament with utility in a remarkable manner—a most valuable contribution. Mr. Holliday of Chelsea was awarded the bronze medal with an assortment of strong and well-constructed articles that merited the approval that was accorded them. Messrs. Wrinch & Son, Norwich, Messrs. T. Green & Son, and Dick Radclyffe & Co. also exhibited sound and well-made articles in wirework among sundry other exhibits of value, showing taste in design and good workmanship.

**Garden Seats, Chairs, &c.**—An enormous number of these were on view, the contributions of about half a score of exhibitors, all of whom submitted excellent productions. The silver medal was awarded to the celebrated firm of Boulton & Paul, Norwich, for a remarkable display, showing great variety in form, good materials and workmanship, and superior finish. Messrs. J. J. Thomas & Co. closely followed with a most meritorious collection of articles, and deservedly secured the bronze medal. The Panklibanon Furnishing Ironmongery Company, Messrs. Nettlefold & Son, T. Green & Son, Dick Radclyffe, and A. McLaren & Co. exhibited well in this class, their articles bearing the stamp of good quality.

**Meteorological Instruments.**—The silver medal was awarded to Messrs. Joseph Davis & Co. of Kennington Park Road for a display of great diversity and high finish. Barometers, thermometers, hygrometers, and other instruments were represented in various forms. Instruments of the same nature were also included in the great miscellaneous exhibits of Messrs. Corry, Soper & Co., and Dick Radclyffe & Co.

**Flower Stand, Vases, Window Boxes, &c.**—Messrs. J. J. Thomas and Co. were once more successful in securing the silver medal. The articles, which were numerous, showed great fertility in design, and combined elegance with strength. Messrs. Dick Radclyffe's contribution, which was adjudged the bronze medal, contained well-constructed and finished articles for various purposes and positions. The Panklibanon Co. also exhibited articles of great merit.

**Tenting and Shading Materials.**—The contributions in this class made an imposing display, as may be expected when the great firms of Mr. Benjamin Edgington and Mr. J. Unite put forth their strength. The first-named exhibitor secured the silver medal with a valuable contribution, including tents of various shapes, including the simple and very useful umbrella garden tent, awnings for chairs, and shading and protective materials of the different kinds that are used in gardens.



Mr. Unite had the bronze medal with articles of the same nature. Mr. W. Cains, Poole, was worthily awarded a certificate of merit for a small and very useful garden tent, showing much ingenuity on the part of the inventor. The tent is 7 feet by 5 feet, has no central pole, yet is strong and rigid. The tent contains a seat and table, which at the first glance would seem to serve no other purpose than the ordinary one; but they do, for they are so constructed as to form a box into which the tent and its paraphernalia can be packed; the box being only 3 feet long, 18 inches wide, and 9 inches deep. Mr. Cain has further carried his ingenuity to the top of the tent, for the central ornament is the mallet for fixing the pegs. This tent ought to be a treasure to picnickers, and is suitable for small lawns generally. Messrs. Boulton & Paul, J. J. Thomas, and Dick Radclyffe had many articles in this class, not less useful than those above mentioned.

**Mowing Machines.**—The Judges' work in this class of eight exhibitors, each having a number of machines, was no sinecure, for special advantages in some form or other were claimed for each kind of mower; and it may be safely said that all were good and did their work well. After a critical examination the silver medal was granted to the old firm of world-wide fame, Messrs. T. Green & Sons of Leeds and London. As the machines are known in all lands where good lawns are cherished it is quite unnecessary to give any description of them. The bronze medal went to Messrs. Ransomes, Head, and Jefferies for a remarkably good method of delivering grass from the boxes of the machines worked by horse power. This is a most efficient contrivance that will commend itself to all operators; the machine is also strong in make, easily worked, and cuts smoothly.

Messrs. Samuelson, Banbury, had a number of machines suitable for the smallest as well the largest lawns that did their work well. Mr. T. Clark (Chadborn & Coldwell Manufacturing Company) was awarded a certificate of merit for the Excelsior machine that won the silver medal last year. It is simple in design, strong, and works with great smoothness and ease.

**Garden Engines, Syringes, &c.**—There was much competition in this class. Messrs. Boulton & Paul were successful in securing the silver and Messrs. Arnold & Sons the bronze medal. The Norwich collection was an extensive one, and included a great variety of appliances for distributing water in the open air and under glass, in large gardens and in small, and was altogether a most meritorious collection. Messrs. Arnold, besides showing hand syringes, had the efficient "Simplex" pump figured and described in this Journal last year, page 169, vol. i., new series. Mr. J. Deverill, jun., Slough, was adjudged a certificate of merit for his patent irrigator for watering lawns. Considerable ingenuity appears to have been displayed in its production, and the Judges' approval was given after seeing it in operation. It is self-acting, and attracted much attention from visitors.

**Rustic Adornments.**—Mr. J. C. Fox of South Kensington, whose summer-houses are so widely known and in such high repute, received the silver medal in this class for a number of picturesque structures of different sizes and patterns, and adapted for the adornment of gardens and pleasure grounds of various sizes and character. They are most satisfactory works of their kind—substantial, and of that quaint and pleasing appearance that commend them to those

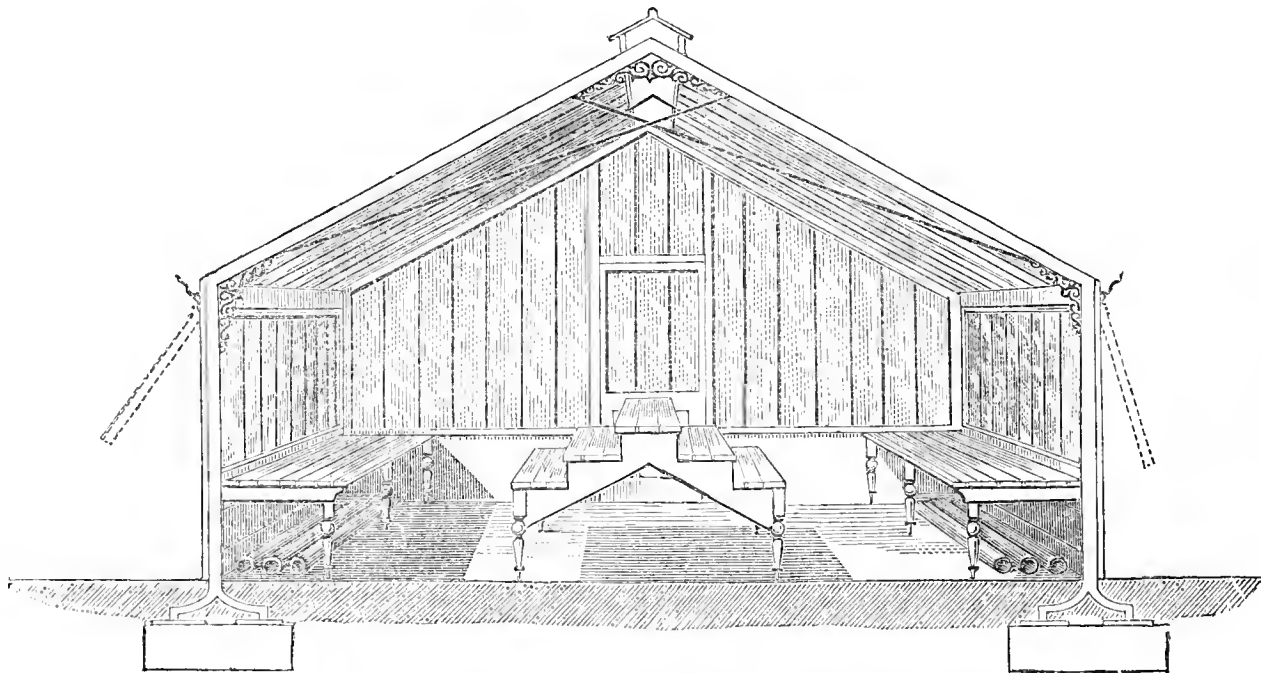


Fig. 104.—FOSTER & PEARSON'S SILVER MEDAL TENANT RIGHT STRUCTURE.

who require houses of this nature. Messrs. Dick Radclyffe & Co. were adjudged the bronze medal in this class for tasteful constructions of the same character.

**Heating Apparatus.**—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the Judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the silver medal was awarded was a wrought iron saddle boiler with a series of intersecting tubes, somewhat in the form of the letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it, but some thought there was scarcely sufficient space for fuel for what is known as "banking-up." It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the Judges. The bronze medal was won by Mr. Warhurst of Highgate for an apparatus designated "Ben's Boiler," a ribbed and flued saddle, the flues being in the sides, and the ribs, in the form of teeth, in the crown; there is also a cross connection in the arch between the two ribs or teeth, and from this cross piece a vertical waterway to the crown of the boiler, affording a free passage of water to the flow pipe. This appears to be a strong and useful apparatus, and will probably do its work well. Mr. Wagstaff had vertical and arched tubular boilers; and Mr. Watson saddle and wedge, also suspension boilers, which found favour with some on-lookers, but as a rule the Judges' decisions were acquiesced in by the horticultural public. Several boilers were included in the miscellaneous collections of other exhibitors. Messrs. Weeks & Co. exhibited their well-known, widely used, and much-approved tubular boiler, but not for competition, also models of horticultural structures of the various kinds as made at their works at Chelsea.

**Garden Structures Modes of Glazing, &c.**—There were no less than seventeen competitors in this class, and the exhibits covered a great amount of space. The silver medal was awarded to Messrs. Foster and

Pearson of Beeston, Notts, with portable frames that were awarded the silver medal last year, and figured and described on page 493, vol. xxxviii.; also a fine span-roofed greenhouse represented in the annexed engraving. It was for this house that the medal was given. It is not only a fine house, 40 feet by 18 feet, strong, with grooved rafters to prevent drip, elliptically cut glass to prevent the putty being saturated and thoroughly ventilated; but it is a true tenant's structure, and can be removed at will. Of this there is no doubt. It can be taken down quickly without disturbing the glass, and speedily erected again as may be necessary. It is also equally a landlord's structure, as owing to the width of the iron foundation standards, 3 feet, the structure is firm and immovable by the wind. The sides are bounded from the ground to stage. It is a substantial and useful house for plant or fruit culture, and worthy of the honour it has received. The bronze medal was adjudged to Mr. Helliwell of Brighouse, Yorkshire, and Parliament Street, London. This is a well-proved system of glazing without putty, all the woodwork being covered with glass, the squares being securely fixed by lead clips on horizontal sashbars; the bars are channelled for the prevention of drip, and the roof may be fairly described as firm, safe, simple and effectual. Certificates of merit were granted to Mr. C. Causley of West Hackney; to Messrs. Tracey & Son, Ilford; to Messrs. Johnson Brothers & Co., Waterloo Place, Pall Mall, and to Mr. T. Bickley, Birmingham, for systems of glazing without putty. Mr. Causley's method is applicable to ordinary sashbars, which are here covered with metal caps, between which and a metal lid in the rebate the glass is inserted and securely gripped. The roof is strong, light, and waterproof, and means are adopted for preventing drip by condensed moisture. Messrs. Tracey's plan consists of tubular metal sashbars with longitudinal slits, in which the glass is inserted and held securely, the tubes resting on horizontal sashbars the same distance apart as the squares are in length. A noticeable feature in this plan is its great simplicity; the roof is curvilinear. Messrs. Johnson's



method is of the same nature as Mr. Causley's, yet is essentially distinct from it, and is good, the roof being quite firm, the glass safe, and no drip from rain nor condensed moisture. The same firm also exhibited their moveable glass coping for protecting wall trees when needed, and admitting the rain or night dews to them as required. The protectors are worked with a crank, and are perfectly safe from injury by wind in whatever position they are placed. The entire arrangement is strong yet light, and works with ease and smoothness. Mr. Bickley's method is of the same character as Helliwell's, inasmuch as the entire framework of the roof is covered with glass, but the method of fixing is different, and a light, firm, and durable roof is produced. In this class also Messrs. Boulton & Paul exhibited a conservatory and a capital assortment of garden frames; Mr. Warhurst, a three-quarter-span greenhouse showing the Paxton roofs and ventilators in different forms, glass copings, concrete slabs for walls, flooring, stages, &c.; Mr. S. E. Wheeler, Nottingham, a span-roof greenhouse with improved ridge lift ventilation and simultaneous side ventilation, and a lean-to house called "The Nottingham;" Mr. H. Beare, Newton Abbots, Devon, handlights, the glass affixed in zinc; Mr. W. Howitt, Ilford, a small greenhouse showing still another new mode of glazing; Fletcher, Lowndes, & Co., specimens of glazing for roofs, conservatories, &c., without putty which have been fully described and illustrated on page 169 of this volume; Messrs. Rosser & Russell, conservatory, greenhouse, and patent system of glazing without putty; Mr. Henry Hope, Birmingham, a metallic vinery, iron conservatory, iron staging and valves and wood, iron tree covers glazed without putty—a substantial exhibit; Mr. T. C. Humphreys, 15, Albert Gate, S.W., iron building suitable for gardener's or labourer's cottage, fruit garden or summer-house, with galvanised corrugated iron roofing; and Messrs. W. Lawrence & Son, Datchworth, showed a small greenhouse with improved system of glazing.

*Miscellaneous Exhibits.*—This class was formed for articles not included in the above classes, and the chief exhibitors were Messrs. Dick Radclyffe & Co., who secured the silver medal for rockeries, fountains, porcelain flowers, table conservatory, Fern case, &c.; these, added to their collection of garden requisites, made a very extensive and diversified display. The bronze medal was worthily awarded to Messrs. Corry, Soper, Fowler & Co., Finsbury Street, E.C., of nicotine soap fame; but they had much more than nicotine soap and other insecticides, fertilisers, &c., for they had a most complete and attractive stand in the corridor. It contained an example, and a good one, of almost every article used in the garden, and was undoubtedly a contribution of very great merit. A certificate of merit was awarded for the Pall Mall edge cutter (Adie's Patent) which was figured and described on page 151 of the present volume; and Messrs. Soan and Smith, Oxford Street, and Messrs. Batham & Co., Bond Street, London, were highly commended for flower glasses and china. The following exhibitors also had stands:—Messrs. Boulton & Paul, a great assortment of miscellaneous articles; Messrs. Kessell & Son, Southwark Street, patent anti-pneumatic fountains for conservatories; Messrs. Morris & Griffin, Wolverhampton, packages of Florein, Daisy destroyer, disinfecting powder, &c.; Mr. W. Speed, The Gardens, Penrhyn Castle, Bangor, nursery and garden slate labels; Messrs. Stevens & Pinches, their "Acme" labels that are so largely used now; Mr. W. Wells, Earlswood Nurseries, Red Hill, a new spray-distributor likely to prove useful for the application of insecticides; Mr. W. Clark, Oxford Street, grass and turf cutters—novel and useful; Mr. A. Westwood, Kirkwood Road, Nunhead, garden labels; Mr. Laxton, Bedford, Rose hook for the removal of Rose suckers; Mr. T. Edington, The Gardens, Woodthorpe Grange, Nottingham, labels; and Messrs. W. P. & G. Phillips, Oxford Street, china and glass, not for competition.

*GOLD MEDAL EXHIBITS.*—After the awards were made in the various classes the task devolved upon the Judges of determining the merits of the collective displays of the several exhibitors, with the view of granting two gold medals for the largest and most meritorious contributions. These proved to be those of Messrs. Boulton and Paul and J. J. Thomas, both of whom had most extensive, diversified and magnificent displays. The mere enumeration of the articles would require so much space that instead of publishing a list we recommend those who are interested to send for the catalogues of the exhibitors, and as almost everything in them was represented at the Show an idea may be formed of the extent of the collections.

A Show of such magnitude as this necessarily demands the exercise of much judgment on the part of the officials, and close attention to the various details on which the success or failure of such meetings to a great extent depend. At South Kensington the officials are adepts in their work, and all work harmoniously and with the same object—namely, of rendering the gatherings as successful as possible and agreeable to all. For these efforts so assiduously rendered a meed of recognition is justly due to all who share in the work of such a great undertaking, and our mite is readily accorded.

*NEW AND OLD PEACH TREE TRAINING.*—Mr. Simpson referring to this subject (see page 438) is wrong in saying I did not give the size of the trees when planted. I said on page 327, "The trees were young, clean, and vigorous, and had, at the time of planting, from three to five well-ripened shoots, each of one years' growth." The crop of 112 dozen was gathered in one, and

not in three years. I admit the correctness of Mr. Simpson's remark about our ages. When I used the expression referred to I meant to convey that I was in possession of facts that the system had been practised for more than fifty years. This finishes the above discussion as far as I am concerned.—A. PETTIGREW, *Castle Gardens, Cardiff.*

#### HYLANDS PARK GARDENS.

A FEW weeks back I visited the gardens at Hylands Park, Chelmsford, the seat of Arthur Pryor, Esq., and if a convincing proof is wanted, there is one of the advantages to be derived from allowing Peach trees to grow unrestricted. Some young Peach trees only planted last year in a house had completely filled the trellis; one tree in particular (I think a Noblesse) had made more growth than any of the others, and its stem was larger than any that I have ever seen for its age. Mr. Bowman is a great advocate for abundance of foliage in all cases, and his opinion is well substantiated by the results. Grapes receive free treatment, and the effect is very satisfactory; about three years back some Muscats were lifted in November, the border re-made, and the results are most pleasing. Mr. Bowman has also paid great attention to the fruit trees, having removed all the old trees and planted others against the walls and lines of pyramidal trees, all of which are doing well. Osborn's Prolific Fig in pots was grand, the branches being staked to hold up the weight of fruit. Strawberries were good and in abundance, two houses being devoted to them. Melons were also very good, the majority being ripe or ripening. Pines, Cucumbers, and all in the fruit houses, of which there are sixteen, looking remarkably well. Just at the season when I was there the flower garden was a grand feature, all the beds being filled with spring-blooming plants. Belvoir Castle and Tom Thumb Wallflowers in thousands; *Myosotis dissitiflora* the same; Daisies pied and *Violas* blue, also in thousands; *Silene compacta* in noble masses; and *Aubrietia purpurea* was most effective. An herbaceous border planted recently contained some fine plants, and will make a pretty margin to the boundary of the flower garden. In nearly the centre of the flower garden stands a fine conservatory, which is composed of three compartments—stove, intermediate house, and greenhouse—well filled with decorative plants grown in other houses in the same garden, which is important in a large establishment like Hylands. The most remarkable plants were *Bougainvillea glabra* and *Lapageria alba*, the *Bougainvillea* with extremely fine branches 2 feet in length, and bearing upwards of two hundred flowers hanging loosely from the roof. But where there is so much done well it is almost an impossibility to particularise. The fine park, mansion, flower and kitchen garden are well worthy a visit, and a courteous reception will be given to any true lover of gardening who should happen to call on Mr. Bowman, the able and energetic gardener and manager.—J. G.



DURING the past week the action brought by Her Majesty's Commissioners of the Exhibition of 1851 against the ROYAL HORTICULTURAL SOCIETY has been before Mr. Justice Fry in the Chancery division, for the recovery of the Garden at South Kensington. The case on behalf of the plaintiffs was stated by Mr. North, Q.C., and that for the defendants by Mr. Fisher, Q.C. The debenture-holders, who claim an indemnity from the Royal Commissioners, are represented by Mr. Montague Cookson. Long arguments have been presented to the Court on each side, but as the case of the debenture-holders was not closed when the Court rose for the Whitsun holidays, it will be resumed on Tuesday the 14th inst.

— A CORRESPONDENT informs us that the unusual severity of the past winter has been felt most forcibly at Lambton Castle, Mr. Hunter having already cut over three hundred cartloads of dead wood from the shrubs. Many of the hardy spring bedding plants have also suffered considerably; the exception to this, however, being *Valeriana Phu aurea*, which has passed scathless,

proving invaluable for spring bedding, and most effective associated with Aubrietias.

— IN the same garden the STANDARD MORELLO CHERRIES are proved to be a decided acquisition, and will in future be extensively grown, as during the past year they have borne heavy crops and ripened the fruit well.

— JUST on the eve of going to press we learn that the following are the approximate numbers of visitors to the ROYAL HORTICULTURAL SOCIETY'S SHOW exclusive of Fellows; and the results show the deterrent influence of the unfavourable weather on the two popular days, Monday and Tuesday. Friday, 1288; Saturday, 1610; Monday, 3632; and Tuesday, 2200: making a total of 8730.

— WE have received a copy of a revised edition of the "SCHOOL GARDEN" by Mr. T. Wilkinson, the original issue of which has been already referred to in these pages. The present edition is slightly enlarged and modified in various ways, but in other respects it is precisely similar to the first edition. It is published at the Gazette Office, Harrow.

— TWO of the most attractive occupants of our shrubberies at the present time are *HALESIA TETRAPTERA* and *EXOCHORDA GRANDIFLORA*, both of which have been figured in this Journal, the former in vol. xxxvi., page 481, and the latter in vol. xxxvii., page 71. These trees are not so well known as they deserve to be, for they are scarcely rivalled as ornamental flowering trees, their value being increased by the fact that they are (especially near London) in their most attractive condition just as the species and varieties of *Pyrus*, *Cerasus*, and allied genera which contribute so much to the adornment of our gardens, are losing their flowers. The scarlet varieties of Hawthorn are, however, excellent companions for the two named, the brilliant colour of the former's flowers contrasting well with the pure white pendulous Snowdrop-like flowers of the *Halesia*, and the large, open, pearly-white blossoms of the *Exochorda*. The Snowdrop Tree and the Pearl Bush are the elegant popular names by which these plants are respectively known.

— THE last issue of "L'Illustration Horticole" contains an engraving representing a BASKET OF ORCHID FLOWERS which was presented by the "Chambre Syndicate des Horticulteurs Beligues," to Princess Stephanie on the occasion of her marriage with Prince Rudolph. The basket was extremely elegant in design, rather more than a yard in height, and about 32 inches in breadth, being entirely filled with Orchid flowers of the choicest and most diverse kinds. They were very tastefully and informally arranged, so that they drooped gracefully over the sides of the basket, some being twined around the high arching but slender handle. They were secured from fading by a foundation of Ferns being placed in the basket, among which small phials of water were hidden, and in these the stalks of the flowers were inserted. Although, as may be imagined from the size of the basket, a large quantity of flowers were required, it is said that quite four times as many as were needed were forwarded to the Committee. This novel and handsome present was greatly admired by the Royal recipient.

— A CORRESPONDENT writes as follows on the SMALL CASE-BEARING LARVA ON ROSE as referred to by Mr. Lester on page 393. "We have not seen this alive, but presume the species is the *Coleophora rosacella* of some authors. The larva constructs a horn-like granulated case out of the leaves upon which it feeds, occurring upon the Rose, generally in April and May. A much larger case-bearer has been taken on this plant, particularly in the west of London. This is the grub of the Rose eaddis fly (*Lyda inanita*), which travels from leaf to leaf, disfiguring the plant, and it attains the length of nearly an inch. The season for

this species, however, is the month of July. For either of these there can be no remedy save the tedious one of hand-picking."

— A PLANT of the peculiar *ARISTOLOCHIA GOLDIEANA* has recently produced several flowers in one of the houses in the gardens of the Royal Botanic Society, Regent's Park. An engraving and full description of this extraordinary plant appeared in vol. xxxviii. of this Journal, page 456. This is said to be the third time the species has produced flowers in Great Britain.

— WE are requested to remind our readers that the SCOTTISH PANSY SOCIETY'S SHOW will be held in Edinburgh on the 17th inst., and as no notice is required from competitors the Committee hope that southern exhibitors will enter the lists. We are informed that the plants in Scotland, owing to the cold season, having as yet made but little growth, the flowers are not in their usual good condition.

— A CORRESPONDENT, "G. F.," writes as follows on the NIGHT-BLOOMING CEREUS:—"Last evening, June 5th, I had the first bloom this year on my plant of the Night-blooming Cereus, *C. grandiflorus*. There are twenty-one buds still to open. Although this plant usually yields a number of blooms, I do not think I ever remember quite so many before. The flower at 9:30 P.M. measured about 2 feet in circumference, the centre 4 inches in diameter. Its scent, which is just like Vanilla, was quite overpowering, and I had to remove the flower from the room in which I was sitting."

— WE are sorry to have to announce the death of Mr. JOHN SANGSTER, formerly a partner in the old seed house of Hay, Anderson, & Sangster, which was flourishing at Newington Butts in Surrey a century ago. The business was established by Walter Hay, a native of Aberdeen, about the middle of the last century; and he was succeeded at his death by his brother, Mr. John Hay, who by his ability raised the house to one of high standing in the seed trade. At his death Mr. John Hay was succeeded by his nephew, Mr. J. Anderson; and Mr. Sangster, who was formerly in business at Aberdeen, having married Mr. Anderson's sister, was admitted a partner of the house. After the death of Mr. John Hay the business lost its guiding spirit; and though Mr. Sangster devoted his best energies to carry it on successfully he failed in doing so, and ultimately, yielding to the force of circumstances, he was compelled to retire without having any provision against the requirements of old age. Mr. Sangster took an active part in the formation of the Gardeners' Royal Benevolent Institution, and was one of the first ten-guinea life members. For many years he took a leading part in its management, and ultimately he was forced to become a pensioner on its funds—a boon which he gratefully received for upwards of eighteen years. It may not be generally known that Mr. Sangster was the raiser of the early Pea called Sangster's No. 1. The writer of this remembers seeing it at the nursery in St. George's Fields about the year 1846, when the whole stock consisted of a single row about 4 yards long. It was selected from a variety then known by the name of Cormack's Prince Albert, which in its turn had been selected from the old Early May. For several years the seed was saved in the nursery, and when the stock amounted to some bushels it was sold retail at half-a-crown a quart. Soon after it was sent out a portion of the stock fell into the hands of Mr. Waite, a seedsman who, it was said, was fortunate in a race won by a horse called Daniel O'Rourke at Epsom, and he sent out the Pea under that name. The true Sangster's No. 1 is difficult now to be obtained, many other names doing duty for it in the seedsmen's catalogue, and the nearest approach to it in its true form is that known as Dillistone's Early. An experiment which he conducted on rather a large scale was to raise early Potatoes from cuttings of the young spires in the hope of thereby avoiding

the Potato disease. At first the results he obtained were encouraging, and it was thought that a remedy had at last been obtained against the disease; but these hopes were dispelled, and it was found that Potatoes raised in this way were as liable to the attacks as those raised after the ordinary method. Mr. Sangster died on the 27th of May in the eighty-fifth year of his age, at Romford in Essex, where he lived for many years.

#### FRUIT PROSPECTS, 1881.

IN this neighbourhood (Brentwood) the fruit crop promises to be but partial. Gooseberries fair, Currants abundant, Raspberries fair, many canes dead; Strawberries looking well, but early blooms were killed by frost; Plums a light crop; Damsons very scarce; Apples on bush trees thin, standards hardly out of bloom; Pears very thin of bloom. Wall fruits: Apricots abundant, more especially on west aspects; Peaches and Nectarines a fair crop; Plums light, Cherries light, Pears also light; Figs where unprotected nearly killed. Black aphides has already made its appearance on the Cherry trees, and also on the Peaches and Nectarines. Gooseberry trees very healthy—no caterpillars, the cuckoo keeping them down altogether. I think the fruit prospects better than they have been for years.

*Apropos* of caterpillars, the crop of a young rook was opened a few days back, and 170 caterpillars were taken from it. Something like three hundred young rooks were shot at one shooting bout. How much more harm was done by the destroyer than by the destroyed! and when will agriculturists learn to value their best friends?—J. GADD.

#### ANNUALS FOR BOUQUETS.

IN many gardens the bedding-out system is, or has been, carried out to such an extent that many things that were familiar enough to the gardeners of twenty years ago have been gradually but surely pressed out of cultivation. With this change in fashion we have now many young practitioners who are but very moderately acquainted with the beautiful and easily cultivated annual flowers that were once so common, and which many employers would be pleased to see again around them. I will not enter into the right or the wrong of the bedding-out fashion, there being room for all systems with us; but to know only one style and to practise no other is certainly not wise.

There are positively "good" gardens, as the phrase goes, where if you were to express a wish to have a bouquet containing no *Pelargoniums*, *Heliotrope*, *Calceolaria*, and *Verbena* the "good gardener" would be puzzled as to how he should oblige you! It is not my design to give any long list of names of annuals—these can be found in any trade circular, but merely to indicate the improvement that might easily be made in this matter. The gardener would not find any appreciable increase in his labours by the cultivation of annuals, and he would be frequently relieved from his embarrassment when many flowers are in request by the lady of the house, and he who has a good quantity of plants in variety all through the season need not be niggardly with these charming simple flowers.

The *Immortelles* are a class of annuals useful in early autumn and onward till frost nips them. They are various in colour, being pure white—as in *Ammobium alatum*—straw-yellow, rose, and white in *Helichrysums*, rose and white in *Rhodanthe Manglesii*. If cut off before the blooms are fully expanded and dried in a box or a loft they are especially useful in "helping out" with a winter bouquet. *Centaurea Cyanus* is a useful bold blue flower, telling well in loosely made table bouquets. *C. moschatus alba* is also good. The varieties of *Gaillardia*, such as *picta*, *Josephus*, *grandiflora albo-marginata*, and *Amblyodon*, are conspicuous either in groups in the borders, and always useful for cutting. *Phlox Haagiana* and *Drummondii* are so good and constant in blooming that they are even useful for the "ground painting," but as a bouquet flower not be despised either mounted or on the natural stalk. As a yellow and orange colour, and with an odour that is agreeable to some people, may be mentioned the small Marigolds—*Tagetes signata*, *T. patula*, and *T. lucida*. These plants are all very fine bloomers, continuing till the arrival of winter. The *Scabiouses*, such as *grandiflora candidissima*, *S. grandiflora flore-pleno*, *S. nana striata*, are all of them very attractive. The *Statice*—*sinuata*, *Thouinii*, both blue, and *Bonduellii*, light yellow—commend themselves on account of their light feathery masses of colour, and by their entire freedom of form—of contrast with the stiff forms we meet with in gardens now-a-days, and of their usefulness in all descriptions of bouquet-making. They flower so abundantly and so long that everybody should

have a patch or two of them. *Statice incana*, *eximea*, *latifolia*, and *coccinea* are perennial species, equally as useful for the purpose indicated.

Balsams may be grown as well or better out of doors than in pots, provided the ground be good and the situation open and warm. The blooms are of great service when mounted, do not wither very soon, and admit, owing to the delicacy and variety of their colours, of many combinations. The *Dianthus* is such an extensive class now-a-days that it may just be necessary to mention a few of the best for the purpose in question. *D. imperialis*, with magnificent double flowers in great variety of colour, and its variety *albus plenus*; *D. Heddwigii* in many sorts, especially *laciniatus* and *laciniatus striatus*. *D. diadematus* is also very fine. With these and the well-known biennials, such as Stocks, Wallflowers in great variety, Sweet Peas, Clarkias, and a host of others, sweet-scented or not but always pretty, the ladies of the family "can cut and come again," and need not fear that by so doing they are destroying the form, or robbing of its buds or wood any choice plant that may have cost the gardener great care to grow to its present state.—F. MOORE.

#### THE USES OF FRAMES IN SUMMER.

THESE being cleared of bedding plants can now be utilised for growing fruits and plants, and the following hints may possibly be of service to some amateurs who are ever thirsting for information.

By maintaining a suitable temperature—that is to say, by avoiding cold draughts of air, and by closing early with moisture, and by giving air more or less according to external temperature, Melons and Cucumbers may be grown to perfection in unheated structures, while Tomatoes will succeed in an ordinary greenhouse temperature.

*Melons and Cucumbers*.—Seeds of these may still be sown singly in 4-inch pots and placed in a gentle hotbed. Keep the young seedlings as near the glass as possible, and before they become much rootbound shift into their fruiting quarters. It will be an advantage, however, if plants are provided or can be obtained ready for planting. They may be fruited in 15-inch or 18-inch pots, tubs, or boxes of near the size of these pots, or on mounds of earth. A rich loamy soil is suitable for both, and in the case of the Melons this should be well rammed down about the roots. Both kinds to be trained on a trellis (easily constructed of wire or strips of wood) about 10 inches or 12 inches from the glass of the roof. Support the plants and rub out side shoots till the trellis is reached in the case of Melons, after which continue to train the leading shoots and tie out the laterals, stopping the former when about a yard up the house and the laterals at the second joint, and these if not already showing fruit will invariably do so at the next break. The Cucumbers may be stopped near the commencement of the trellis, and a few of the top shoots laid in; these will fruit and should be stopped at their second joints, and all succeeding growths to be so stopped and kept tied up where required. Neither kind should be allowed to become dry at the roots. Care must be taken not to give too much water when first planted, and always use water slightly warmer than the temperature of the house. Dell's Hybrid, Victory of Bath, Earl of Beaconsfield, green flesh; and Read's Hybrid, scarlet flesh, and Scarlet Gem, are good varieties of easy culture.

*Tomatoes*.—These may be fruited in various ways. A valuable crop may be taken from single plants in 11-inch pots, or two plants in larger pots. Supposing there are a number of plants already prepared for planting in the open, select some of the best of these, and pot them in rough soil consisting of two parts of loam to one of decomposed manure; pot deeply so as to allow for a liberal top-dressing of soil later on; place in the front of the frame, and train single stems near the glass; rub out all side shoots as they form, and stop the leader beyond the third bunch of bloom. A slight increase of heat will much advance the crop.

*Various Plants*.—By increasing the temperature for any of the foregoing the growth of many other flowering and fine-foliaged plants will be much quickened. Coleuses, Caladiums, Ferns, Begonias, Celosias, Cockscombs, Gloxinias, Achimenes, Torcnias, and other favourites will succeed admirably in frames, and will be useful for house decoration. Plants of any description when received by post should at first be immersed in tepid water, potting them off when thoroughly freshened. As many of the plants so received have but few roots and have been grown in rather a high temperature, place them in very small pots, and if possible in a warm frame, and shade carefully from bright sunshine. When established pinch out the points of those of a



branching habit, such as Fuchsias, Coleuses, and Petunias, and repot them before they become rootbound.—AMATEUR.

#### RAISING VINES FROM EYES VERSUS LAYERS.

IN raising Vines for pot culture to fruit the following season I prefer eyes, about  $1\frac{1}{2}$  inch in length, prepared something similar to a Rose bud with the wood left in. These are placed horizontally just below the surface of the soil in 60-sized pots, using rather fine turfy loam. About the middle of February they are plunged in an ordinary two-light Cucumber frame, after which they are placed in a pit and shifted on, their final shift being in 10-inch pots, where they show fruit at every joint the following season. Of course they are treated liberally and afforded every opportunity to make wood and ripen the same thoroughly; and when

the forcing time comes round they are placed on the front stage (stone slab over the pipes) of an early vinery started this year on the 20th of January, the pot Vines being eleven months old at that time. They are top-dressed with cow manure, and the soil in the pots well intermixed with bone meal, in my opinion the very best manure for the purpose yet obtainable. Six nut wands are placed at equal distances around each pot inside, and the Vines coiled around the sticks in the bottle-screw style: the sticks are not much over 2 feet above the rim of the pots.

The variety we find to be the surest cropper is the Black Hamburgh. We have had from ten to thirteen bunches on these Vines. Six of those Vines were exhibited at the Maidstone Horticultural Society's Show the last August, and received a special award. If "A KITCHEN GARDENER'S" layering practice would be the slightest improvement on the above I would be pleased to adopt



Fig. 105.—LAVATERA ARBOREA VARIEGATA—NATURAL-SIZED LEAF.

it, but I am very dubious. However, we will see what other growers may have to say on the eye system of raising Vines *versus* layers.—W. H. C., Tunbridge.

#### LAVATERA ARBOREA VARIEGATA.

VERY rarely indeed does it fall to our lot to figure for the first time and introduce to our readers a new border plant so striking in appearance as the variegated Tree Mallow which we now submit. When Mr. Smith, The Gardens, Clevedon Hall, Somerset, first sent us leaves of his new acquisition we were almost startled by their markings, and on subsequently receiving flowering sprays of the plant we were still more convinced of its distinctness and beauty. The history of the plant is brief, and may be told by its discoverer, who writes—

"I found a plant 6 inches high growing in a neglected cottage garden. I made an exchange for a few bedding plants, and was very

pleased with my bargain. I have propagated several plants, and I have not yet seen one but what is beautifully variegated. It is a fine shrubby border plant, growing 6 or 7 feet high, and I find the leaves very useful for garnishing late Grapes when Vine leaves are not to be had. I believe the variegated Lavatera to be as hardy as the green species, which lives only through mild winters in this neighbourhood. The last two or three winters have been too severe for it. I kept my plants last winter in an unheated Peach house. I may mention that the entire stock is in my hands."

The figure on the next page is a truthful representation of one of the sprays sent to us, reduced in size, and the others were equally good. We have had a natural-sized leaf engraved separately, the artist having had instructions to show its markings with great exactitude. The irregular mixture of very dark green, pale greenish grey, and pure white impart to the plant a remarkable appearance. The plant appears to us to occupy a position amongst border plants similar to that of the Variegated Maple in shrubberies.

We may add, that although the variegation is so pronounced and the white so pure, there is not the slightest indication of weakness in the sprays, but, on the contrary, they are as strong

and vigorous as green specimens. We have described this as a new plant because it is new to us, and if anyone else should happen to have been equally fortunate with Mr. Smith in obtain-



Fig. 106.—*LAVATERA ARBOREA VARIEGATA* (SMITH), REDUCED FIGURE.

ing and perpetuating this variety so much the sooner will it have a place in the gardens of this country.

**PAINTING VINES—A MISTAKE.**—That mistakes eventually lead

to success and perform a material part in the making-up of a practical gardener I believe, but perhaps it is equally true that few care to admit of error. Excuses are more fashionable. It is my usual practice to fruit what Vines I have that remain unsold, and this year I had left a fine batch of Alnwick Seedling. Having



some of that valuable mixture for Peach trees—Scotch snuff, sulphur vivum, and quicklime in equal parts, with it I painted some of the young canes, planted them, and shortly after commenced syringing. This washed the mixture down to the roots, and instead of the Vines growing they died, and on pulling them up the roots were all black and dead. The same fate undoubtedly has followed the application of other mixtures when reasonable precaution has not been taken.—JOSEPH WITHERSPOON.

#### WHAT PLANTS USE.

POSSIBLY much of what appears in the following remarks may have appeared again and again in the Journal, but much of it needs reiteration in order to its being pressed home on the minds of those to whom it is addressed. Horticultural writers, who quite understand what they are writing about, often fail to convey their meaning to those they address; and if they should accomplish this much, still, little useful purpose is served, for unless readers understand the reason why certain courses should be followed it is seldom that they are followed. Thus it is no uncommon thing for novices in Grape culture, after reading that "Vines require abundant supplies of water," to forthwith thoroughly wet the surface of their Vine borders and nothing more, and be eminently satisfied with their work, while all the while the Vines are languishing for want of water. It is commonly understood that vineries need to be ventilated, but the why and the wherefore few seem to understand. We do not refer to novices only, for we are convinced "air-giving" is not so well an understood matter by even many good gardeners as it ought to be. It is not seldom that men have gained laurels and made names for themselves by merely imitating the successful practice of others. Were there fewer mere imitators and more practitioners who acted understandingly, we should not read and hear such sentences as these,—"Where Mr. So-and-so succeeds others might fail"—so often. Men fail because they do their best to imitate only. Were they to do nothing without understanding it, systems practised with the greatest success by some would not become so often discredited by others failing to do likewise. Certainly our practice ought to be judged by the success or otherwise which attends it; but there can be no doubt that the man who understands is more likely to succeed than the mere imitator. The one walks in light and can see the rocks ahead and avoid them; the other gropes in darkness, and suffers shipwreck or escapes by a miracle. To be able to steer a safe course some knowledge and much study are required. Indeed, every gardener would require to be somewhat of a philosopher. We lay no claim to that title. We have dabbled in science, and tried to make science helpful in our practice, and have imagined, at least, that it has been so; and now beg to offer a few crude observations in the hope that at least the less informed among your readers may be thereby benefited.

We have headed our remarks "What Plants Use," and have incidentally mentioned vineries; we will, therefore, make the following remarks apply as much to Vines as possible, although much of it may be applied to any other plant cultivated under glass.

Vines use air, light, heat, water, and a number of mineral matters. We will in this paper confine our remarks to air, light, and heat. It may seem a wonderful statement to some to say that after water air yields to Vines the greater part of their substance. The Vines themselves are chiefly formed from the carbonic dioxide which is present in the atmosphere to the extent of 1 in 2500 only, and yet the leaves, the fruit, the stems, and even the very roots which burrow in the earth, derive nearly all their substance from water—pure water, and the very small amount of carbon which is everywhere present in air in the form of carbon dioxide gas. The roots take in the water, the leaves inhale the gas, and cause the water and gas to be converted into something quite different from either. Water is a compound consisting of hydrogen and oxygen, and carbon dioxide is a compound of carbon, familiar to us as charcoal, coke, soot, &c., and oxygen. By a wonderful process not quite understood the plant causes these substances to cease being water and carbon dioxide gas, and reconverts them into wood, starch, gum, sugar, and a great many other substances called carbo-hydrates (hydro-carbons), because they are formed from the elements of water (hydrogen and oxygen) and carbon. All our vast coalfields, our bogs—at least the peat that is in them—the mighty forests that supply our timber; the cornfields that supply our bread, our sugars, oils, teas, coffees, spices, our clothes; almost everything we possess, which is not stone or metal, has been formed of water and the carbonic dioxide which is present in the atmosphere in the small proportion we have named.

Small as it is, it is amply sufficient, however, if a current of air be constantly passed over the leaves. In nature this is constantly occurring, but not always in vineries. The leaves of plants, and especially deciduous trees, are densely studded with open greedy mouths—stomata they are called—which inhale the air and rapidly extract the carbon from the carbon dioxide, and set the oxygen free. "On a single square inch of the common Lilac as many as 120,000 have been counted, and the rapidity with which they act is so great that a thin current of air passing over the leaves of an actively growing plant is almost immediately deprived by them of the carbonic acid it contains—(*Chemistry of Common Life*, page 58, new edition). What is true of the Lilac is no less true of the Vine; and as a matter of fact Vines, even under diffused sunlight, when in a temperature of over 60° deprive the air of its carbon as rapidly as it is admitted by ordinary ventilation, and when no ventilation at all is given the air very soon becomes quite exhausted, and the Vines fail to find what is absolutely necessary to their well-being.

In the absence of light—that is, during darkness, plants cease to manufacture the raw materials—air and water, into tissue-forming matter. Nay, when growing temperatures are maintained during darkness these operations are reversed, and much of the work done by day is undone by night. Vines in a temperature of 60° and upwards are always doing something. By day they build their structures; by night they, to an appreciable extent, unbuild it. On the other hand, when the temperature falls below 50° they do next to nothing at all—they rest.

We have seen that under a high temperature, strong sunshine, and a plentiful supply of air and other necessary matters, plants grow with rapidity. It requires no science to teach us that—we are familiar with the fact; but we are far too apt to ascribe the whole to the high temperature only. It is not so, however. Light is as necessary as heat, and heat of itself is not enough; it may, indeed, do more mischief than good. Under a dull sky leaves do not perform their functions so rapidly as under bright sunshine, even though the temperature should be artificially kept high. The exclusion of air, then, in order to maintain, say, a temperature of 80° is not good practice, and certainly tends to cause weakness in time. It is better by far to maintain a current of air in order to maintain a proper supply of carbon, even although by so doing the temperature should not be over 70°; indeed, we doubt if Vines will decompose carbonic dioxide and water more rapidly in a temperature of 80°, when the light is weak, than they will in one of 70°. With unobstructed sunrays acting on the leaves the case may be different, but there can be no doubt that the right thing is to make the heat and air supplies correspond with the light. We are quite aware that high temperatures induce precocity, and that forcing is a race against time with many; but hard forcing accompanied with closed ventilators means speedy ruin. It is not so much the unnatural season at which early Vines and Peaches are forced which causes their early decay as the unnatural way they are forced. It is quite true that we often cannot help ourselves—that is a phase of the subject we cannot enter into here—but the fact nevertheless remains that forwarding the Vines by night and cheating them of a full supply of air by day is ruinous.—SINGLE-HANDED.

(To be continued.)

#### MANCHESTER ROYAL BOTANIC

AND HORTICULTURAL SOCIETY.—JUNE 3RD TO 10TH.

THE above Society has again held a grand display of plants. In few places can a society boast of some 50,000 spectators visiting their exhibition, as was the case last year, and no doubt it will be as much thronged this as in previous years. The long line of carriages and the vast stream of ladies and gentlemen that poured in as soon as the Exhibition was opened gave a good idea of the popularity of the Society and the success that evidently attends its shows. One of the chief features of the event was the large number of Orchids, which were admitted to be the best ever seen in the Botanic Gardens. The first-prize collection staged by R. B. Dodgson, Esq., Blackburn, will long be remembered. The Orchids were arranged along the front on either side of the large Exhibition house, with the collections of stove and greenhouse plants in the background. The long table down the centre contained the miscellaneous collections of plants from Messrs. B. S. Williams, London, and R. P. Kerr & Sons, Liverpool. To the right were staged the large plants of Messrs. Cypher and Sons, Cheltenham, and on the left those of Messrs. Cole & Sons, Withington. At the further end of the house were arranged the amateurs' collections, and J. F. Williams, Esq., Worcester, well deserved the honours awarded him. It is questionable if he ever staged plants in better form and condition. Passing into the next large tent, hitherto so famous for the noble specimen Roses shown in previous years; although the Roses were missed, the tent contained a choice collection of hybrid Rhododendrons from Messrs.



John Waterer & Sons, Bagshot. They were all planted out in the beds occupied with plants during previous exhibitions. They were not quite at their best, but the display was gorgeous and the change all that could be desired. On the right hand side of entering were the Clematises exhibited by Messrs. R. Smith & Sons, Worcester, and the collection of Maples, both being highly creditable to the firm. The third tent was much larger than usual, and was, on the whole, brighter than in previous years. It contained many of the dwarf-growing Ferns, both hardy and exotic, also the Ericas, Zonal Pelargoniums, and a collection of plants from Messrs. J. Standish & Co. the front of the stage being edged with Strawberries in pots and Pansies. The stage, which occupied the centre, was three parts filled with herbaceous and Alpine plants. These were far more numerous than at any previous show, and attracted much attention.

**Stove and Greenhouse Plants.**—In the class for twenty plants, ten in flower and ten fine-foliage, there were only two exhibitors—Messrs. J. Cypher, Cheltenham, and Messrs. Cole & Sons, Withington, taking the prizes in the order named. In the first-prize collection were *Latania borbonica*, *Areca lutescens*, *Thrinax elegans*, *Encephalartos villosus*, *Verschaffeltia splendida*, all large and in good condition; *Croton Wiesmanni* and *C. Disraeli* were well coloured; *Clerodendron Balfourianum* and *Bougainvillea glabra*, well flowered, 5 feet through; *Azaleas elegantissima*, *Holfordianum*, and *Le Conquerante* were each 5 or 6 feet in diameter at the base, and well flowered; *Pimelea spectabilis rosea*, *Dracophyllum gracile*, and *Gleichenia speluncæ* were also fine. Messrs. Cole & Son had fine examples of *Cycas revoluta*, *Latania borbonica*, *Kentia Forsteriana*, *Erica Cavendishiana*, and *E. ventricosa magnifica*, both the latter flowering well. The *Azaleas* were the chief feature in this collection, and large well-flowered plants of the following were staged—*A. Criterion*, *A. Iveryana*, *A. Mrs. Fry*, and *A. Magnificent*. In the corresponding amateurs' class there were five competitors, Mr. Tudgey, gardener to J. F. Williams, Esq., Worcester, being a good first. The best plants were *Pritchardia pacifica*, *Cycas circinalis*, *Latania borbonica*, *Geonoma gracilis*, *Cycas revoluta*, 7 feet through; *Cocos Weddelliana*; *Croton Johannis*, well coloured; *C. Queen Victoria*, very fine, about 4 feet through; *Ixora Williamsi*, well bloomed; *Erica Cavendishii*, *E. ventricosa magnifica*, *E. ventricosa coccinea minor*, all large, well, and densely flowered. The second prize was secured by H. Samson, Esq., Bowden, who staged fine specimens of *Gleichenia rupestris* and *G. flabellata*, *Cycas revoluta*, *Ixora Colei*, *Statice profusa*, and a handsome *Anthurium Schertzerianum*. Third Mr. C. Paul, gardener to S. Schloss, Esq., Bowden, with *Stephanotis floribunda* on a trellis 5 feet high; *Anthurium Schertzerianum*, very fine; *Azalea Napoleon III.*, *Acrophyllum venosum*, and *Genetyllis tulipifera*, all healthy. In the class for eight stove and greenhouse plants John Rylands, Esq., Stretford, was placed first with rather small but neat plants; Mr. Samson, Bowden, being a good second.

**Azaleas.**—In the open class for six greenhouse *Azaleas* Messrs. Cole and Sons were the only exhibitors, and staged very creditable plants of *A. Duchesse Adelaide de Nassau* and of *A. Trotteriana* among others. In the corresponding amateurs' class G. Hardy, Esq., Timperley, was the only exhibitor, and staged a very fair collection, including a healthy well-flowered example of the beautiful bright orange variety *Marquis of Lorne*.

**Ericas.**—These were more largely shown than on some previous occasions, and the plants were both good and well flowered. Messrs. Cole & Sons were first with good plants of *E. ventricosa*, *E. tricolor major*, *E. Cavendishiana*, *E. Victoria regina*, *E. ventricosa coccinea minor*, and *E. Lindleyana*. Messrs. Cypher & Sons were second with slightly smaller plants. Mr. Williams, Worcester, obtained the first award for vigorous plants in the amateurs' class for six, Mr. H. Samson being second with smaller plants, but neat and healthy.

**Crotons.**—In the open class for eight *Crotons* Messrs. R. P. Kerr and Sons, Liverpool, obtained the premier award, showing good well-coloured plants of *C. Johannis*, *Prince of Wales*, *Morti*, *Hawkeri*, *Hanburyanus*, *Evansianus*, and a remarkably fine plant of *Croton interruptus aureus*, well coloured. Messrs. Cole & Sons were second with much smaller plants of *Prince of Wales* and *C. Disraeli*. In the class for six varieties R. B. Dodgson was first, the best plants being *Queen Victoria*, *Earl of Derby* (very good), and *Prince of Wales*. Mr. Schloss was second, having a good plant of *Wiesmanni* and other kinds, such as mentioned above; Mr. John Rylands taking the remaining prize.

**Dracenas.**—In the open class for ten plants Mr. B. S. Williams, Upper Holloway, was the only exhibitor, and was awarded the first prize for good plants of *D. Robinsoniana*, well coloured; *D. Thomsonii*, a very fine variety much after *D. Renardiae*; *Albo-marginata*, very fine; *D. Caustonii*, *D. Mrs. Freake*, *D. majestica*, *D. Wilsoni*, and the beautiful narrow-leaved *D. superba*. In the class for six plants Mr. R. B. Dodgson was the only exhibitor, and staged good plants of *D. Youngi*, *D. Chelsoni*, *D. Baptistii*, *D. Mooreana*, *D. amabilis*, and *D. excelsior*, and was awarded a first prize.

**Orchids.**—As before stated these were numerous and good. The display was highly effective and an interesting exhibition in themselves. In the open class for sixteen exotic kinds Mr. B. S. Williams, as usual, obtained the highest honours in the nurserymen's class, which the collection well deserved. It included *Cypripedium Stonei*, with its large and curious flowers; *Lælia purpurata Brysiana*, a fine variety with eight large flowers; *Epidendrum vitellinum majus*, with about forty of its rich orange scarlet spikes; *Calanthe vejatifolia*

with ten spikes; *Dendrobium crystallinum*; *Vanda tricolor insignis*, a fine plant; *Cattleya Mossiæ superba*, with eight flowers and several unexpanded; *Masdevallia Veitchiana*, well flowered; *Calanthe Dominiana*, with eight spikes; *Cypripedium barbatum superbum*, with from thirty to forty flowers; *Cattleya Mossiæ*, with seventeen flowers; *Lælia purpurata*, ten flowers; *Masdevallia Lindeni*, good; *Odontoglossum vexillarium roseum*, very large flowers, bearing three spikes; *O. cordatum* having nine spikes. Messrs. J. Cypher & Sons were second with much smaller and weaker plants. In the corresponding amateurs' class Mr. R. B. Dodgson was first with excellent plants of *Masdevallia Harryana*, with about forty spikes; *Dendrobium Ainsworthii*, a well-flowered plant; *Odontoglossum vexillarium*, fully 2 feet 6 inches in diameter, with over thirty spikes; *Cypripedium villosum*, 3 feet in diameter, covered with flowers; *Lælia purpurata*, a fine variety with eighteen flowers; *Masdevallia Veitchiana*, with about fifty flowers; *Dendrobium thyrsoiflorum*, with sixteen extra large spikes; *Cypripedium biflorum*, fully 3 feet over, and well flowered; *Cattleya Warneri*, grand, with twenty-six flowers; *Vanda suavis*, twelve spikes; *Epidendrum vitellinum majus*, with about thirty spikes; *Cypripedium barbatum superbum*, 3 feet through and covered with flowers; *Cattleya Mossiæ*, twenty-one flowers; *Masdevallia Harryana splendens*, a very fine variety; and *Dendrobium Wardianum*, well flowered, with stems nearly 4 feet long. The second collection, from Mr. J. Hill, gardener to G. Hardy, Esq., Timperley, was also very good, especially the *Cattleyas*, his best plants being *Cattleya Mendelli*, with eighteen flowers; *C. Mossiæ grandiflora*, with thirty-three flowers; *C. Mossiæ aurea*, very fine, twenty-nine flowers; *Odontoglossum vexillarium*, with twenty-three spikes; *Vanda Denisoniana*, *Dendrobium thyrsoiflorum*, var. *Walkerianum*, with twelve very large spikes; a well-flowered *Dendrobium Bensoniæ*; and the fine *Oncidium Marshalli*, the latter well representing the packing system, two varieties being together in the same pot.

In the open class for ten Orchids Mr. B. S. Williams was again first with a fine collection, and Mr. J. Cypher second with very small plants. In the amateurs' class for nine Mr. E. Mitchell, gardener to Dr. Ainsworth, Higher Broughton, was first with *Phalaenopsis grandiflora*, eight or nine plants packed together in a large pot bearing about ten good spikes, *Saccolabium præmorsum*, a grand variety, with six large spikes, *Dendrobium Jamesianum*, *Dendrobium crassinode* with stems fully 3 feet long and well flowered, *Vanda tricolor*, *Aerides Fieldingii* seven spikes, some of which were fully 18 inches long, and a good plant of *Odontoglossum vexillarium*, but the flowers rather short of colour. Mr. Dodgson was second with neat plants of *Cypripedium Stonei*, *Cattleya Mendelli*, *Odontoglossum vexillarium*, *O. citrosum*, and *Dendrobium Schröderi*. In the class for six Mr. G. Hardy took the lead. The second prize was secured by Mr. W. Sherwin, gardener to W. Sparks, Esq., Huyton, Liverpool, who showed fresh and neat plants, but not quite so large as the preceding. For three Orchids Mr. Hardy was again first with *Dendrobium thyrsoiflorum* with nine spikes, *Odontoglossum vexillarium* thirteen spikes, and *Cattleya Mossiæ marmorata* with thirteen flowers. Second, Mr. J. Aitken, gardener to J. H. Allan, Esq., Timperley, with *Brassia verrucosa*, *Cattleya Mossiæ superba*, and *Odontoglossum Pescatorei*. In the class for one Orchid Dr. Ainsworth was first with *Phalaenopsis grandiflora*, Mr. Tudgey second, and Mr. J. Aitken third. In the special prize class for six specimens (single plants), the first and second prizes given by Henry Shaw, Esq., Buxton, Dr. Ainsworth was first with *Saccolabium præmorsum* with two spikes, *Aerides Schröderi* six spikes, *Vanda suavis*, *Cypripedium villosum*, *Aerides Fieldingii*, and *Phalaenopsis grandiflora*. Second, Mr. D. Broadman, gardener to G. Hodgkinson, Esq., Dunham Massey, with *Vanda suavis*, *Dendrobium nobile*, *Cattleya Mossiæ*, *Lælia purpurata*, *Brassia verrucosa*, and a fine basket of the lovely *Dendrobium Faleoneri*.

**Ferns.**—These were not shown in large numbers, but the plants staged were in the best possible condition. In the class for eight stove and greenhouse Ferns Mr. S. Schloss staged a fine collection, and the *Gleichenias* were really well grown, being from 6 to 7 feet through. The following were most noteworthy:—*Gleichenia flabellata*, *G. Mendelli*, *G. dichotoma*, *Goniophlebium subauriculatum*, *Davallia Mooreana*, and *Davallia tenuifolia*. Mr. J. Hesketh, gardener to A. Birley, Esq., Pendlebury, was second, having large plants of *Cyathea medullaris* and *Cibotium Schiedei*. Third Mr. Tudgey, a fine plant of *Microlepia hirta cristata* being notable. In the class for six *Adiantums* Messrs. R. B. Dodgson, George Hardy, D. Broadman, and D. Adamson, Didsbury, obtained the prizes in the order named, the latter two being equal. In the first collection the Ferns best represented were *Adiantum euneatum*, *A. tenerum*, *A. formosum*, *A. concinnum latum*, and *A. excisum*. Hardy Ferns were rather numerous, the plants being robust. The first prize in the class for twelve was obtained by Mr. Charles Ryland, Aughton, Ormskirk, the following being his best plants:—*Athyrium Filix-femina Fieldiæ*, *A. F.-f. Cragi*, *A. F.-f. Friselliæ*, *A. F.-f. plumosum*, *A. F.-f. grandiceps*, *A. F.-f. Elworthæ*, *Lastrea Filix-mas grandiceps*, *L. F.-m. cristata*, *L. F.-m. angustata*, *Polystichum proliferum*, *P. angulare cristatum*. An extra prize was awarded to Mr. F. W. H. Stansfield, Todmorden. In the corresponding amateurs' class the prizetakers were Mr. Brookbank; Mr. John Leech, gardener to John Wild, Esq., Stand; and Mr. A. Birley in the order named, showing similar varieties to those above enumerated. In the class for six Filmy Ferns Mr. Tudgey was first with good plants of *Trichomanes radicans*, *Hymenophyllum*

nitens, Todea superba, Hymenophyllum demissum, and H. tunbridgense. Mr. J. Rylance was second, and Mr. G. Smith third.

*Roses*.—These were very poorly represented, and those shown need but a passing notice. In the class for twenty plants in 9-inch pots there was only one exhibitor—namely, Mr. H. May, Bedale, some of his plants bearing a dozen blooms. In the class for six plants there were two exhibitors, Mr. R. Elphinstone, gardener to John Heywood, Esq., Stretford, taking the lead with fair plants but rather past their best and the flowers small. The second prize was awarded to Mr. W. Brockbank.

*Palms and Yuccas*.—In the class for four Palms there were three exhibitors. Mr. G. Hardy, Mr. Upjohn, gardener to Lord Howard, Glossop, and Mr. John Rylance secured the prizes in the order named. The first collection included clean and well-grown plants of *Geonoma princeps*, *G. gracilis*, *Latania borbonica*, and *Cocos Weddelliana*. In the class for two Yuccas, Mr. D. Adamson, Mr. S. Schloss, and Mr. G. J. Morton, gardener to James Fildes, Esq., were the prizetakers.

*Pelargoniums*.—These plants produced a very brilliant effect and were shown in excellent condition, and the competition was keen in some instances. In the class for eight Show Pelargoniums Messrs. Lazenby & Sons, York, exhibited some handsome plants and gained the first prize. The specimens were not quite so flat as those generally shown, and looked much better on that account. They were densely covered with flowers, and it would be a difficult matter to produce better plants. The varieties were Hermit, Duchess of Edinburgh, Amazon, Queen Bess, Triomphe de St. Mande, Kingston Beauty, and Digby Grand. Mr. Charles Rylance was second with smaller and flatter plants but very good, his best being Rob Roy, Albina, Brigantine, Beacon, and Royal Bride. Third, Mr. H. May, Bedale, with good plants of Belle Blanche and Regalia. In the class for eight Fancy Pelargoniums Mr. Robert Gore, Huyton, Liverpool, was the only exhibitor. In the class for twelve Zonal Pelargoniums Mr. C. Rylance was first with good plants, but too many scarlets, the best being Mrs. Whitley, Wellington, Acme, Queen of Beauties, Captain Holden, and Mrs. Jacoby. Messrs. J. Lazenby & Sons were second, having good plants of Lady Emily and Mrs. Hetley. Third, Mr. Robert Gore.

*Pansies*.—These looked well and gay, and made a capital edging for the tables. In the class for twenty in 8-inch pots Mr. Henry Hooper, Bath, was the only exhibitor, and was awarded the first prize for good plants. In the class for twenty Fancies Mr. Samuel Robinson, Sale, was first with a satisfactory collection and very neatly set up. Mr. Henry Hooper was second. The same exhibitors taking the prizes in the order named for twenty Violas; Messrs. W. Joynson, Brockbank, A. Lumbers, J. G. Adams, and D. McClure being the principal prizetakers in the remaining classes.

*Clematis*.—In the class for fifteen specimens Messrs. R. Smith and Co., Worcester, were the only exhibitors, and staged very creditable well-flowered plants. The best were Marie Lefebvre, William Bennett, Henryi, Victoria, a fine variety; Gloire de St. Julien, Lord Nevill, Hybrid Perfection, and Excelsior. In the class for six kinds Mr. Elphinstone won with good well-flowered plants of *Lanuginosa candida*, Lord Nevill, Sensation, Marie Lefebvre, and Empress Eugénie.

*Alpine and Herbaceous Plants*.—These were, as before stated, shown in large numbers and in fine condition. They were the chief feature of the tent in which they were staged, and gave an excellent opportunity for admirers of this class of plants to make selections. Those staged in the open class by Messrs. J. Dickson & Sons, Newton Nursery, Chester, were very fine; eighty specimens were staged, and all in good condition. A few of the most striking were *Spiraea palmata*, *Delphinium Madame Pélé*, *Hesperis matronalis flore-pleno*, *Iberis corifolia*, *Spiraea Filipendula flore-pleno*, *Saxifraga Cotyledon* with a pyramidal spike of light flowers 3 feet in length; *Scilla peruviana*, *Lychnis lagascea*, *Vriesia coccinea*, *Erinus alpinus*, *Lupinus polyphyllus*, *Dietamnus Fraxinella*, *Pyrethrums*, *Geums*, and others. The second prize was awarded to Mrs. Brownhill, Sale, Manchester, a few of the best plants being *Caltha palustris flore-pleno*, *Saxifraga intermedia*, *Saxifraga Wallaei*, *Czakia liliastrium*, *Pyrethrum Progress*, *Saxifraga pyrenaica*, and *Ranunculus aconitifolius flore-pleno*. For thirty-six Mr. W. Brockbank was first with an excellent assortment. Mr. Wm. Plant, gardener to R. P. Gill, Esq., Ashton-on-Mersey, and Mr. J. Kay, Prestwich, second and third. In the first group were *Geranium ibericum*, *Papaver pyrenaicum sulphureum*, *Lamium longiflorum*, *Primula farinosa*, *Phlox Nelsonii*, and *Aquilegia juncunda*.

*Nepenthes and Sarracenias*.—For the best collection Mr. B. S. Williams was the only exhibitor, and staged a few very interesting species, such as *Nepenthes intermedia*, *N. robusta Kennedyana*, *N. hybrida maculata*, *N. rubra*, *N. Stewarti*, *N. Hookeriana*, *N. Rafflesiana*, *N. Dormaniana*, *N. ampullacea*, *Sarracenia purpurea*, *S. major*, *S. variolaris*, *S. flava maxima*, *S. Drummondii*, and the curious little *Drosera spatulata*.

*New and Rare Plants*.—In this class for twelve plants Mr. B. S. Williams and Mr. J. Cypher were the only two competitors, the former taking the lead, and showing *Dracena Earl of Derby* very fine, *Philodendron elegans*, *Adiantum Williamsi*, a good plant; *Thrinax gracillima*, *Croton Warreni*, *Anthurium Waroequeanum*, *Oleobachia palustris*, *Dracena Goldiana*, *D. superba*, *Cyphokentia robusta*, *Dieffenbachia Imperator*, and *Lastrea membranifolia*. Mr. J. Cypher showed *Anthurium Schertzerianum densifolia*, *Croton*

*interruptus aureus*, *Sabal cœrulescens*, *Microlepis hirta cristata*, *Croton Mortii*, *Cymbidium Lowianum*, *Croton Wilsoni*, and *Anthurium Schertzerianum Hendersonii*, a fine large spathe. In the class for six Mr. Dodgson was first with *Nepenthes Lawrenciana*, *Oleobachia palustris*, *Alocasia Thibautiana*, *Cryptopodium Lawrenciana*, and *Philodendron elegans*; Mr. Tudgey being second with *Anthurium Andreanum*, *Gleichenia dicarpa longipinnata*, *Croton Hanburyanus*, *Croton Warreni*, and *Ixora Duchess of Teck*.

*Fruit*.—For a collection of ten dishes Mr. Wm. Pratt, gardener to Lord Hill, Hawkstone, was the only exhibitor, and staged a very creditable collection considering the season. The collection contained two bunches of Black Hamburgh Grapes, two Pines, Grosse Mignonne and Early Rivers Peaches, President Strawberries, Brown Turkey and Grosse Monstrueuse de Lipari Figs, Hawkstone Seedling and Eastnor Castle Melons. Mr. A. Jameson, gardener to the Earl of Crawford and Balcarres, was first in the class for two bunches of Black Hamburgh Grapes with good examples; second, Mrs. Ackers, Congleton; and third, Mr. J. Hand, gardener to J. Knowles, Esq., Bolton. For two bunches of white Grapes Mr. W. Breese, gardener to Mrs. Ackers, was first with Duke of Buccleuch, fine large berries, but not ripe. For two Pine Apples Mr. McGaw, gardener to F. J. Sumner, Esq., Hayfield, was first; Mr. Faulkner, Wootton Hall, Liverpool, second; and Mr. W. Breese third. Messrs. Faulkner and F. J. Sumner were the exhibitors in the class for one Pine Apple, and secured the prizes in that order. For twelve pots of Strawberries Mr. Faulkner was first with a fine collection of President; second, J. Legh, Esq., M.P., Lyme Park; and third, Mr. McGaw; and Messrs. Dickson, Brown, & Tait exhibited their new Melon Best of All, grown by Mr. McIndoe.

*Miscellaneous Exhibits*.—A beautiful collection of choice stove and greenhouse plants was exhibited by Mr. B. S. Williams, not for competition. The plants were all small, and included the newest *Dracenas*, *Crotons* of which one called *Rodeckianus* promises to be a useful kind. A pan of *Cyperus laxus variegatus* was also in the group, and is a decided improvement upon the old *Cyperus*. Palms, Ferns, and others intermixed with small flowering Orchids gave to the group a gay and effective appearance. A similar group was staged by Messrs. R. P. Kerr & Sons; *Croton Dormanianus* was conspicuous, also pans of *Hydrangea stellata*, *Erica perspicua*, and *E. perspicua nana* were freely employed in the group. Messrs. J. Standish & Co., Ascot, exhibited a group of similar plants, with plants of the Tea Rose *Niphetos*, also two large boxes of cut blooms of the same variety, and one box of *Gardenia* blooms.

Messrs. Kelway & Sons, Langport, exhibited a grand display of cut blooms of *Pyrethrums*, a few of the best seedlings being Captain Boyton, Placida, Queen Hilda, Rembrandt, Duchess of Edinburgh, and Captain Dares. Mr. Thomas Ware, Hale Farm Nurseries, also staged a collection of *Pyrethrums*.

This report would be incomplete without taking the opportunity of congratulating the members of the Council upon the success of the Exhibition, and also Mr. Bruce Findley for his indefatigable exertions to carry out the arrangements of the Society in a business-like and successful manner.

### ODD CORNERS.

SOME interesting notes under the headings of "Odds and Ends" have lately been published in the Journal, and I think something might now be said with advantage about "odd corners," which are to be found in all gardens no matter what their size may be. In some cases the cultivators are particular to make the most they can of these, but in the majority of instances they are neglected and add nothing to the supply. There are certain small crops we set apart for growing in odd corners altogether, and I never think of making provision for them in the main quarters. This plan I find economical in every way, and well worthy of being generally followed.

Narrow borders between walks and walls in kitchen gardens are mostly well cropped, but there is often an odd strip close to the bottom of the wall which is left vacant, and this is one of the most valuable parts in a garden for very early and very late crops. There early Potatoes do remarkably well, and amongst them Lettuces and Radishes come in ready for use some weeks before those in the more open quarters. In summer Tomatoes do excellently planted there, and during winter Lettuces, Endive, Radishes, &c., may again be had from the same position with very little trouble. Where much space of the kind exists early Cauliflowers, Carrots, Turnips, &c., may all be secured there, and Dwarf Kidney Beans may also be added to the list of crops suitable for such positions. Parsley, too, is well protected at the foot of a wall during winter, and it may often be gathered there in severe weather when that in more exposed parts has disappeared.

As Vegetable Marrows may now be planted out, odd corners will be found to suit them as well as any other place. The top of any old dung or refuse heap is a capital spot for them provided it is not too much shaded. Spinach and other quick-growing crops may as a rule be grown in odd corners, and young plantations of Broccoli, Savoys, &c., being raised from seed may all



be grown where it would not be thought worth while to sow or plant anything else. Experienced people who see the kitchen garden here generally remark the economical way the odd corners are utilised; but the practice need not be confined to the vegetable quarters. In the pleasure grounds there are often many vacant spots which might be filled with annual and herbaceous plants which would yield a supply of useful flowers in their season, and that too without interfering with other arrangements.

Under glass there are numerous odd corners which may be most profitably employed to produce various useful and ornamental plants. In moderately cool houses Tea Roses may be placed in any spare corner, and numbers of flowers will be had

from them. Tomatoes are also suitable for such places, and a crop may be had from them in a short time, when they may be cleared away to give place to other things. Briefly, anyone who makes the utmost use of all their odd corners for a few months as a trial will never give up the system.—M. M.

#### ADIANTUM BAUSEL.

WE have been asked for particulars relative to this Fern. Our reply is, that it is one of the most distinct and elegant forms of the numerous and deservedly popular Maidenhair Ferns, the peculiarity of which has during the past year attracted much attention. It is reported to be a hybrid between *A. trapeziforme*

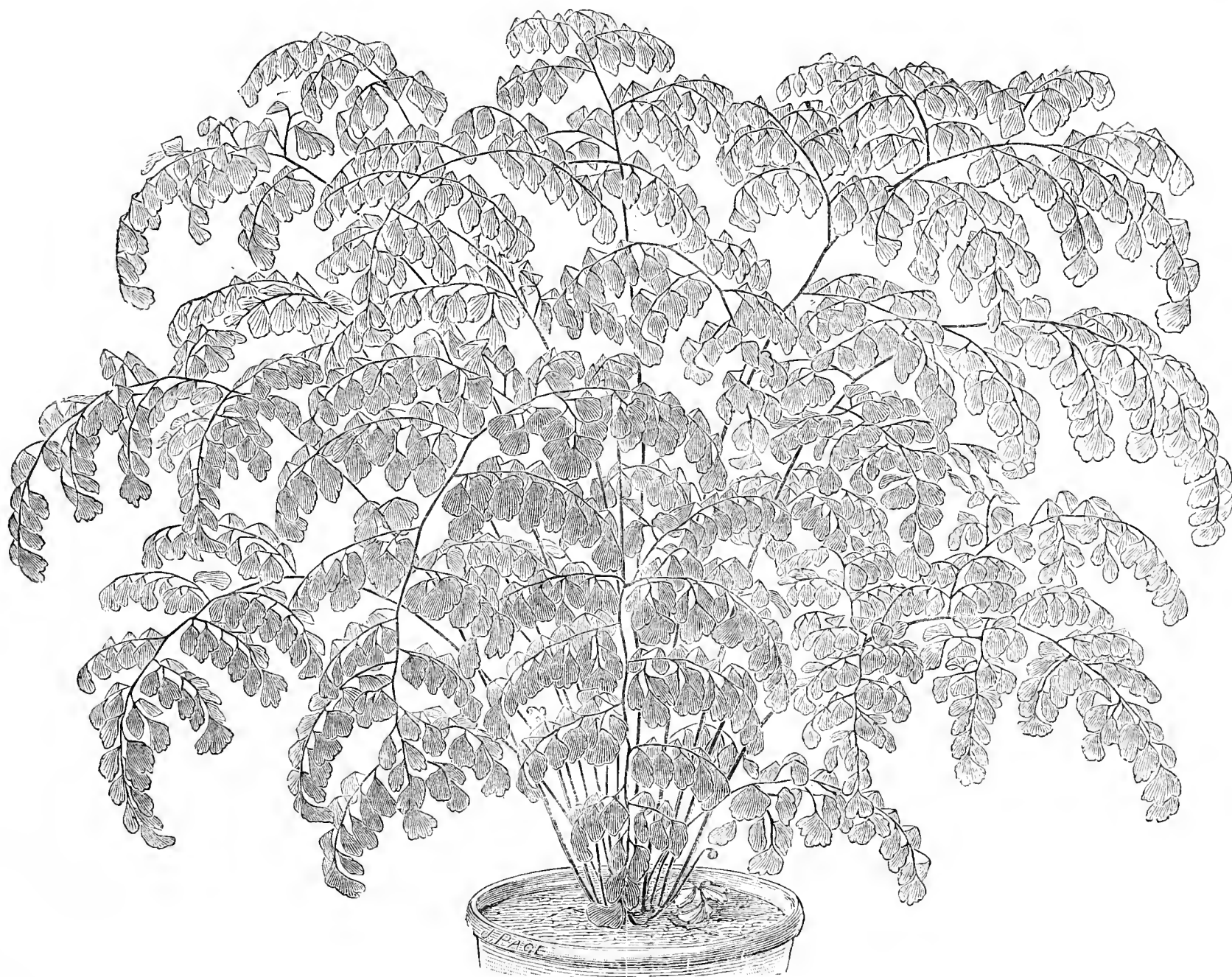


Fig. 107.—ADIANTUM BAUSEL.

and *A. coneinum*, obtained at the Anerley Nursery of the General Horticultural Company. Spores of the two species named were sown in one pot, and, among many young plants produced of both forms, one very distinct in character of a drooping habit was observed. This was carefully preserved, grew rapidly, and, proving fertile, spores were readily obtained, from which a large stock of Ferns was raised, possessing all the characters of the parent. But a remarkable origin and peculiarity of form are not the only recommendations of this Fern, for it deserves to rank among the best plants for decorative purposes, and the fronds appear to possess sufficient firmness of texture to endure exposure either in a moderately low temperature or the dry atmosphere of rooms. Certificates have been awarded for it at the chief metro-

politan exhibitions. For the accompanying woodcut we are indebted to the above-named firm.

#### BATH AND WEST OF ENGLAND SOCIETY'S SHOW. TUNBRIDGE WELLS.—JUNE 6TH TO 10TH.

UNDER the skilful guidance of the Hon. and Rev. J. T. Boscawen the horticultural department admirably sustains and adds to its reputation at this meeting, which opened on Monday and closes on Friday. The large tent devoted to flowers is well filled with a host of magnificent specimens, so well grown as to be worthy of close inspection individually, and all of them contributing much to the general effect. There can be no doubt that most of the plants impress the visitors all the more strongly from the consummate taste



shown in the grouping; and the eye wanders delightfully along, pausing to dwell with a keen sense of luxurious enjoyment upon group after group, being attracted by the delightful colour combinations, and then if possible still more enjoyably taking in the grand whole.

All along the centre runs a mass of elegant foliage—Tree Ferns, Palms, Cordylines, and Screw Pines, mingled with huge highly coloured specimens of pyramidal Crotons, Oranges, and Dracenas, lightness and grace predominating throughout, for there is not the slightest approach to heaviness or formality in any part of the arrangements—just a flash of brightness to greet one at the entry, and by way of a parting salutation as we leave, in a narrow bank of Rhododendrons; then the Ferns and Palms, with a charming fringe of colour running all along the front of one side and deepening at intervals into brilliant groups of Orchids, Gloxinias, and stove plants of more pretentious proportions. But along the other side of this grand central grouping there is an agreeable contrast in a margin of the charming greenery of a collection of Lycopodiums grown in large pans, all of them admirable examples of high finish and skilful culture.

At the further end of the tent a noble group of Rhododendrons gives a rich mass of colour, and forms a pleasant and appropriate finish to the scene. The side stages contain many interesting groups, one of the most instructive of which is a fine collection of Begonias from Messrs. J. Laing & Co., Forest Hill Nursery, of which the most striking were Hon. Mrs. Brassey, deep glowing scarlet; Admiration, bright scarlet; L'Abbé Froment, bright yellow; Commodore Foot, a dwarf variety with very deep rich scarlet flowers and dark green downy foliage; Pollie, of a lovely pale primrose hue; Annie Laing, deep pink, very large flower; Mrs. Laing, with large handsome flowers of fine form; and Esther, with magnificent double flowers, rosy crimson, and with the edges of the petals charmingly fimbriated. Then we have examples of cereals from the garden of Dr. Siemens, grown under the influence of the electric light, and which from all being in full ear, and the Wheat having already blossomed, would certainly tend to prove an acceleration of growth and early maturity from it. An attractive example of double white Mignonette, bearing the wonderful name of *Reseda odorata flore-pleno prolifera alba*, from Mr. W. Balchin, Western Road, Brighton. This is really an acquisition, the flowers being very double, each one having the form of a ball of delicate filaments, and it is deliciously fragrant. A basket of seedling Anthuriums from Mr. Walker, gardener to B. H. Collins, Esq., Dunorlan, have scarlet spathes of extraordinary size and substance. An attractive collection of cut blooms of Clematis, plants of Japanese Maples, Ferns, and a charming bit of rustic work, consisting of old tree stems, over which trailed a collection of rare sorts of Ivy, interspersed with moss and various plants in the most natural manner. Of plants worthy of especial attention the Gloxinias from Mr. Walker deservedly merit prominent notice, the flowers being unusually large, well formed, and highly coloured.

Orchids grown by Mr. Myles, gardener to F. Harris, Esq., M.D., Lamberhurst, were very fine; an example of *Cypripedium caudatum* was especially good. *Croton angustifolius* some 7 or 8 feet high shown by Mr. Pope, gardener to J. J. Barrow, Esq., Holmewood Park, Tunbridge Wells, and *C. variegatus*, attracted much attention. A huge *Latania borbonica* from Mr. Buchanan, and an Anthurium and *Clerodendron fallax*, very fine and highly finished, were exhibited by Mr. Bolton, gardener to W. Spottiswoode, Esq., Combe Bank, Sevenoaks. A fine example of *Dipladenia Brearleyana* was exhibited by Mr. A. Gibson, gardener to J. F. Burnaby Atkins, Esq., Halstead Place. A noble plant of *Francisea calycina major*, one mass of bloom, was sent by Mr. Bolton; and several pans of Lycopodiums, each some 2 feet and upwards in diameter.

#### COMPETITIVE CLASSES.

*Orchids*.—The principal group of these charming plants, to which the first prize was awarded, was from Mr. Thomas Denny, gardener to Sir William Marriott, The Down House, Blandford, Dorset. All of these were well-grown medium-sized plants, exceedingly well flowered, and, like all the other plants, they gained much in effect from the tasteful manner in which they were arranged; several fine plants of *Adiantum gracile* being mingled with the front plants, a huge specimen of *A. farleyense* making a noble centre, while high overhead huge Tree Ferns spread their graceful fronds outwards over the group, imparting an air of grace and finish to it. The finest plant of the group was *Lælia purpurata* with twenty flowers. To this plant was awarded a special prize by the Judge, Mr. Dominy, as the finest specimen in the Show. *Cattleya gigas* was especially fine and well coloured. *C. Mossiæ*, too, was well shown in several varieties. The high-coloured *Masdevallia Harryana* told well among the lighter-coloured varieties, and *Dendrobium infundibulum* was very beautiful. Suspended above the large *A. farleyense* was a basket of *Utricularia montana*, very full of its lovely delicate white flowers. A smaller group of Orchids was shown by Mr. T. Myles. *Lælia majalis*, which had been grown in a cool house, had a fine flower. The *Cypripedium* already noted was in this group. A point of considerable merit in these Orchids was the high degree of excellence to which they had been brought in very small pans, the clean vigorous appearance of all of them reflecting great credit upon Mr. Myles.

*Grapes*.—There were three exhibits of black Grapes, three bunches

each; Mr. J. Allan, gardener to G. Hanbury Field, Esq., Ashurst Park, gaining the cup. For three bunches of white Grapes the cup was awarded to Mr. J. Bolton, gardener to W. Spottiswoode, Esq., for some noble fruit of Duke of Buccleuch. There was no competition for this latter prize, but those shown were certainly worthy of the award.

*Asparagus*.—First class—Gardeners, for sixty heads. First Mr. C. Haycock, gardener to Roger Leigh, Esq., Barham Court. Second Mr. Dixon, gardener to Captain Taylor, Glenleigh, Hailsham. Third Mr. Allan, gardener to Lord Suffield, Gunton Park. Market growers, for three hundred heads, Mr. A. J. Harwood, St. Peter's, Colchester, was first. These were magnificent heads, being of very large and even size, greatly superior to all the other exhibits in every class. For the special prize, confined to market growers in Kent, for two hundred heads a first prize was awarded to Mr. Charles Philpot, Eassey, Sandwich.

On Tuesday the Prince of Wales visited the Show, devoting some time to an inspection of the horticultural tent, where he was received by the Hon and Rev. J. T. Boscawen.



#### HARDY FRUIT GARDEN.

WHERE established Apple and Pear trees have been headed down and regrafted during the present spring, the scions will, if they have taken, now be growing vigorously, so that the clay may be removed, and the ligatures of bast or other material with which the scions have been bound may be slackened, and to prevent them from being broken off they must have supports to keep them in position. Thinning Apricots should by this time have been finished, as the fruit is now large, and any that remain more than is necessary for the crop will cause danger in stoning, or should the fruit pass this satisfactorily it will not be nearly so large nor so good in quality. The leading shoots of these where required for filling vacant space should now be tied or nailed in, and the foreright and other shoots not required for training-in may be stopped at the third or fourth leaf, so as to induce the early formation of short-jointed spurs, which are essential for the production of next year's crop. When the trees are well furnished with healthy growths this is a good time to remove any barren wood or projecting spurs. Grubs must be well looked after and rolled-up leaves removed, otherwise this pest soon seriously injures both foliage and fruit. Complete disbudding Peaches and Nectarines, and tie-in the shoots at the base if on a trellis, or lay-in the young wood with small twigs across the branches. Avoid overcrowding, and pinch the shoots at the third leaf to attract the sap to the fruit, and to one leaf afterwards as produced. The trees are generally very healthy this season. Remove blistered leaves, and if aphides appear apply tobacco water, and wash well with the garden engine. Dessert Cherry trees against walls may be treated similarly to Apricots. Plums require all foreright and other shoots not needed for extension to be stopped at the third or fourth leaf, so as to induce the early formation of spurs, similar remarks applying to Pears; and if any of these trees have barren projecting spurs now is a good time to shorten them, provided always there is otherwise a proper supply of healthy wood. Lay in as much young wood of Morello Cherry trees as will uniformly furnish bearing wood for next season. If aphides attack Cherries and Plums syringe them with tobacco water or some approved insecticide. Wall trees generally in restricted borders should have thorough supplies of water, employing liquid manure for weakly trees, and mulch the roots with short, partially decomposed manure. The water and mulching is particularly necessary for trees that have been recently lifted and root-pruned. To enable Strawberries to swell off well copious supplies of water must be afforded, mulching to keep the fruit clean and the roots cool and moist. To secure superior fruit for dessert the trusses should be well thinned as soon as the best fruits are discernible, leaving three or five fruits to each truss, tying them to small sticks. Pyramid and bush Apple, Pear, Plum, and Cherry trees, also cordon and espalier-trained trees, must have attention in watering or supplying with

liquid manure if necessary, and mulching with short manure or other rich compost. Pinch the shoots as soon as three or four leaves are formed, rubbing off any strong growths, and stop extensions at the sixth leaf, the leaders of pyramids being stopped when 12 inches of growth is made. Train in the extensions of cordons and espaliers their full length, and stop the central shoot of those trained horizontally at 12 inches of growth. Raspberries must have the suckers that spring from the stools reduced, reserving about six of the strongest to each. A mulching of manure or an application of liquid manure will be highly beneficial in improving the size, quality, and continuance of this fruit. A similar mulching to Gooseberries and Currants would be found advantageous to the crop.

#### FRUIT HOUSES.

*Peaches and Nectarines.*—Trees with fruit swelling should be well watered and the border mulched so as to maintain an equable condition of moisture at the roots, and a genial condition of the atmosphere may be secured by keeping the surface of the borders well damped. Syringe the trees twice a day so as to have the foliage perfectly free from red spider when the fruit commences ripening. Attend to ventilation early in the day, and lose no opportunity of securing a free circulation of air. In late houses the shoots must be tied down as they advance, stopping all lateral growths to one leaf, and allow no more shoots to remain than can have full exposure to light and air. Directly the fruit has stoned in succession houses the final thinning must be performed, not leaving more than a fruit to every square foot of trellis covered with growth. Remove any leaves that shade the fruit too much, and raise the fruit by means of laths across the wires, so that the sun and air may colour them. When all the fruit is gathered in the earliest house admit air to the fullest extent, and after a fortnight of this treatment it will be advisable to take off the roof lights altogether, syringing forcibly to keep down red spider. The current year's bearing wood not being extensions should be cut out, and where the growths are crowded thin them, allowing no more to remain than will give bearing wood for next year at 12 to 18 inches distance.

*Figs.*—Continue attention to the instructions recently given until the present crop of Figs is fully perfected, when it will be necessary to gradually produce a more genial condition of the atmosphere to accelerate the second crop of fruit. Syringe the trees twice daily, damp the house, and water the border when needful, mulching if not already done. Attend to stopping, tying, and regulating the growths, and by no means allow the latter to be overcrowded. Thinning the second crop should be attended to in good time, and unless the trees are very vigorous it should not be done sparingly, as too heavy a crop is not only exhausting to the tree but the fruit is inferior in size and quality. Early-forced trees in pots in a weakly condition should have the fruit entirely removed, retaining the trees in the house until the wood is well matured, when they may be placed outdoors in a warm situation, and if well mulched and watered they will be in excellent condition for early forcing another season. The pots should be placed on a bed of ashes and be surrounded with the same, syringing overhead occasionally during hot dry weather. Later-started crops will now be rapidly approaching maturity, and when the fruit commences ripening they must have the same treatment as advised for the early-forced Figs—i.e., syringing must be discontinued and ventilation secured.

*Pines.*—Plants that were transferred about last September into the pots in which they are intended to fruit will now be showing signs of fruiting, but if such is not the case bring the plants together and subject them to a comparative state of rest for the next five or six weeks, lowering the heat at the roots to 75°, maintaining a free circulation of air whenever the weather is favourable. Artificial heat will hardly be necessary, but it must be resorted to, to prevent the night temperature falling below 60°. Water must not be withheld, but whenever a supply is needed afford it liberally. The small suckers which were kept in small pots during the winter months should be kept growing until the pots are well filled with roots, when, if necessary, they may be subjected to the treatment advised for the larger plants, and these will afford a successional supply of fruit.

#### ORCHARD HOUSE.

The different kinds of Apricots, Cherries, Peaches, Pears, Plums, and Nectarines are now fairly set, and should be syringed every evening unless the weather is unusually cold. The syringing is indispensable for the Peach, Nectarine, Cherry, and Plum for some time to come; the other kinds of fruit trees are less liable to attacks of aphides. The syringing if forcibly done will mostly be effectual, but on no account must the aphides be allowed to exist and spread, recourse being had to fumigation or the application of an insecticide. During fine weather the ventilators should now be open from 6 A.M. to 6 P.M., affording abundance of water to trees planted out as well as to those in pots. Thin-out the fruit of Apricots if necessary, also that of Peaches and Nectarines; attending to this matter with respect to Cherries, Plums, and Pears, a moderate crop of fine fruit being every way preferable to a heavy crop of inferior quality. Trees in pots should have a top-dressing of rich material, and those planted out should have a surface-dressing of decayed manure. Attend to stopping irregular growths.

#### PLANT HOUSES.

*Orchids.*—Ventilation must be attended to so as to have the foliage of the plants dry about the middle of the day, being careful not to allow a current of cold air to come in contact with them. If any disease is noticed lose no time in examining the roots, cutting away any diseased parts, and apply a little quicklime, keeping the plant drier for a few days. Phalenopses grown in pots or baskets should have very little moss, as the roots delight to cling to the pots. An ordinary greenhouse during the summer months is more suitable for *Dendrobium nobile*, *Laelias acuminata*, *albida*, *autumnalis*, *furfuracea*, and *majalis*, than the Mexican house, as, unless exposed to sun and air, they do not flower freely. Plants of *Laelia cinnabarina* may be top-dressed or repotted as necessary before starting into growth, using rough peat and giving plenty of drainage, watering freely after growth is fairly started. They do best at the coolest end of the Cattleya house. Epidendrums must have plenty of air, and expose them to the light as much as possible. Plants of *Calanthe vestita* that have filled the pots with roots may be shifted into larger pots, employing leaf soil and well-decayed manure, or if not desirable to repot them afford weak liquid manure at every alternate watering. Syringe morning and evening freely, and grow them in plenty of light, keeping the foliage free from scale by sponging.

*Store.*—Winter-flowering plants are apt at this season to receive a check from inattention to their requirements through the pressing demand for immediate attention in other departments, but whatever check the plants now receive will be injurious to the flowering. *Gesnera cinnabarina*, *G. exoniensis*, *G. zebrina*, and *G. zebrina splendens* are amongst the most useful of winter-flowering plants, and must be encouraged to make stout sturdy growth. A single strong corm is best for a 6-inch or 7-inch pot, and for a 9-inch pot five to seven may be employed. It is essential that they be as near the glass as possible, with only sufficient shade to prevent scorching. *Euphorbia jacquiniæflora* cuttings inserted some time ago are now ready for transferring to 4-inch pots, employing fibrous loam. Old plants that have been headed down and repotted should be encouraged to grow, stopping to induce them to branch freely. *Eranthemum pulchellum* is valuable for its blue flowers, and though they are not very durable in a cut state, it is often made worse by not being grown in full light. Spring-struck cuttings should be shifted into 6-inch pots, employing equal parts of loam and peat with a liberal admixture of sand.



#### SWARMING.

THE swarming of bees well understood appears to a thoughtful mind singular and wonderful. The more the insect world is studied, and the farther the researches of men extend into the habits and instincts of insects, the more wonderful their history becomes; but where in the realm of Nature can we find a parallel

case to the swarming of bees? Careful preparation is made in a bee hive for an increase of population, for emigration and colonisation, and for placing a queen over every colony. During the spring months steady progress is made till the crisis of swarming is reached. The hive becomes crowded to excess; fanning is resorted to, to save the community from suffocation; and even while the fanning process goes on bees may be seen coming to the door and on to the flight board for fresh air. A glut of honey may come, giving the bees less room inside; a change in the weather may render the inner life more unbearable and cause clustering outside. These indicate the approaching crisis of swarming. The moment arrives and the rush commences. The bees, with rations for three days' keep, run to the point of the flight board before they take wing, and when on the wing what a noise they make, whirling and twirling above and around their hives! Attempts to swarm without making a great noise would be a failure; for by noise bees follow one another, keep close together, and gather into a cluster on a hedge or tree. About two-thirds of the bees of a full hive go with the first swarm and never return. The bees with the old queen bid a final adieu to the old hive, and those left in the old hive are more comfortable and better off without their old companions. Though without a queen, they contentedly await the birth of a princess. She has rival sisters which come to maturity about the same time and covet the high position of the first-born, and in every encounter between queen bees the result is fatal to one of them. If the bees wish to send off a second colony they endeavour to prevent encounters between young queens by keeping the reigning queen from attacking her sisters in their cells, allowing all to pipe and bark at one another for three full days as much as they like. If the bees determine not to swarm, piping is prevented and the supernumerary queens are killed. This is a brief and well-known story of what takes place in swarming.

That it is natural for bees to swarm all apiarians admit; and, in our opinion the day is not far distant when advanced apiarians will consider that, in the profitable and successful management of bees, the swarming system should be generally carried out. I say generally, for in very unfavourable seasons and under special circumstances and aims wise bee-keepers alter their plans and modify their practice. The exception, however, is not the rule. The more I practise bee-keeping and consider the subject, the more I am convinced that the swarming system of management in competent hands is the best for profit to bee-masters, best for strength of hives and health of the bees.

The readers of the *Journal of Horticulture* have been frequently told that if they make their hives doubly strong with bees in autumn they cannot well fail to be successful bee-keepers or to obtain swarms, and with these in fine seasons they may have large harvests of honey. Large hives made strong with bees in autumn is the shortest and easiest road to the highest excellence in apiculture.

Swarming generally commences in May and continues till the end of June. In Scotland swarming is permitted to continue for eight or ten days in July, but there, and also in some parts of England, Heather abounds, which lengthens the honey season till September. Circumstances and the aims of the bee-master must determine when swarming should end and supering commence. The taking or rejection of second swarms is a point that should be decided by the bee-master, for he best knows the size of his hives and the locality around them. From large early swarmers we have found that second swarms are an advantage, and from later swarmers a disadvantage in our localities. In sending off second swarms about half the bees go with the swarms and half remain in the old stocks. Second swarms from large hives weigh about  $3\frac{1}{2}$  lbs. each; from small hives about  $1\frac{1}{2}$  lb. each. First swarms from small hives are proportionately larger than from large hives—that is to say, that though second swarms from small hives are, generally speaking, not half so large as those from large hives, the first swarms from the former come to within about one-third of the size of swarms from large hives. This is not easily accounted for. The reason may possibly lie in the fact that clustering outside before swarming is usual with small hives—not so with large ones, which swarm without clustering as a rule.

After the queen and first swarm have left a stock the brood nearly filling it continues to be hatched into bees daily for three weeks. Thus there is a great increase of population and sometimes a decrease in weight—always a decrease in weight if honey be not gathered enough to make good the loss of weight in brood. But the cells which yielded the brood are empty, making the effective strength of the population great for work. In such hives there are both store-room and workers. Why, then, turn the bees out and put them into an empty hive to begin house-keeping and comb-building again? Why recommend a practice so against

reason? Well, this practice does seem unreasonable, and I dare not argue the matter. Still, I follow the practice when my stock hives are heavy enough to yield 20 lbs. of honey each on the twenty-first day after swarming, for 20 lbs. of honey realise 25s., which to me covers a multitude of defects in practice. Twenty-five shillings per stock hive at the first harvest is an agreeable profit. Then, in such seasons the swarms, two or more per stock hive, are working in hives with young combs, and the old combs all melted down. To dispose of old combs with advantage is a great satisfaction to me. How it is, let doctors tell, that swarms work, as a rule, harder than stock hives, and bees in young combs do better than in old ones. The fact only is noted here. The other fact, too, is worth remarking—viz., the introduction of comb foundations for the use of swarms, and the creation of natural combs in swarm hives by feeding for a few days when they first enter them. A good beginning may be thus made at the cost of a trifle of the 25s. per hive profit alluded to.—A. PETTIGREW, *Bowdon, Cheshire.*

#### DRIVING BEES IN SITU.

I WAS much gratified to find in the *Journal* of the week before last that you purposed giving the questions asked as well as the answer, as I have often wished to know what they were; and, indeed, it would make the *Journal* doubly useful, and I hope you will continue it when space will allow. I now want you to be good enough to let me know whether, in driving bees from a flat-topped hive instead of turning up the hive and placing it mouth to mouth with another, I could not take out the bung at the top, place the empty hive over, and so drive the bees, as it would be much easier to do?—CLIFTON.

[It is the nature of the bee to store her honey above the brood, or far from the entrance to her home. The reasons for this are two at least. 1st, In winter the warm air rising from the cluster always keeps the honey at such a temperature that the cells can be opened and appropriated, howsoever intense the cold without may be. If, on the contrary, the honey were below the bees, the store would instantly chill and benumb the owners if they attempted to touch it. 2nd, The honey is far from the entrance to save it from plunderers; and leaving man and the bee itself, the chief of these, out of view, we find figuring here rats, mice, wasps, ants, and a host of other creatures large and small that would be quite willing to profit by such an arrangement as would allow them to get the honey first and meet its defenders afterwards.

When assailed the bee rushes to the entrance to meet the enemy, but when frightened it retreats upwards to get at its store and fill its honey bag. In driving the agitation of the comb produces terror, and a rush upwards is the result; but by inverting the skep to be driven, the instinct aforesaid, instead of conducting the insects to their store and giving them cover and security amidst their combs, puts them at our disposal. Our correspondent is quite right in supposing that if we can open a hive above driving is possible without inversion. Mr. Cheshire has, in one of his books, related how this was put to the test in the case of a Woodbury hive which had cross-built combs. To lift out any frame by itself was impossible. The cover was removed. An empty Woodbury minus floor-board took its place, and now drumming on the side soon sent the bees aloft, and the forced swarm remained on the stand, while in the absence of the bees the combs were cut out, straightened, and replaced. But although this was accomplished, the simple removal of the bung will not make its repetition possible with the skep. The combs are fixed to the roof, and the bees between the side combs will at their ascent find no exit, so that but a portion only will be secured. Again, the heavy honey at the top of the skep will by the rapping be by degrees detached, and the comb will probably drop in confusion, to the ruin of the colony our correspondent desires to secure. But if this disaster does not follow, the queen, if not in the centre to which the bung-hole opens, will simply wait against the hive top as under a bomb-proof while the bee-keeper's artillery is attacking the walls. In driving a skep a few weeks ago we cut off the side of the house of straw, removed and transferred to frames more than half the combs, and not till then did we find the queen, gummy with honey, hiding in the recesses of the bung-hole, in which she had no doubt passed her time during each driving. This, which is not a very uncommon case, shows that if some cover can be found by the queen we are unlikely to secure her; this being so, the chances of success in the manner our correspondent suggests are but meagre. The whole process, as ordinarily conducted, is so easy that to attempt it is to succeed, and we therefore counsel that the hive be inverted, and that by preference open driving be adopted, when



the harmlessness of the frightened bees will inspire courage for future operations.]

### TRADE CATALOGUE RECEIVED.

R. Van Til & Company, Hillegom, near Haarlem, Holland.—*Wholesale Catalogue of Dutch Flower Roots.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**To our Readers.**—Although we have printed additional pages, owing to unusual pressure on our columns this week, the publication of many valuable articles in every department of this Journal must be deferred to a future issue.

**Books (Agent).**—The work you name is very full and practical, and in all probability will answer your requirements. Vine culture is included in it, but on this subject you may advantageously procure Mr. William Thomson's work on the Vine, published by Blackwood; and the "Vine Manual," published at this office, post free, 3s. 2d.

**Caterpillars on Roses (M. E. H.).**—We are not aware that you can destroy them by syringing either with pure water or an insecticide. Rosarians find the only true remedy is to examine the trees frequently, and either remove the caterpillars or crush them with the fingers. They are most destructive, and if not attacked in good time and persistently, often quite ruin the blooms and seriously injure the plants.

**Erecting a Greenhouse—a Dispute (An Enthusiast).**—The case which you have submitted, and endeavoured to do so clearly, is one for your solicitor to advise you upon. Even if we were acquainted with all the facts, so that we could fully understand the case, there is still the legal question, upon which we could not venture an opinion.

**Begonias Damping (C. D.).**—You do not make it clear whether the flowers or the plants are decaying; but at any rate the moisture is excessive and the ventilation deficient, and the remedy is obvious—increase the one and diminish the other. Your other question will be answered next week.

**Mildew on Gooseberries (Mrs. A. G.).**—The Gooseberry bushes are infested with the fungus, and we cannot suggest a better or safer remedy than syringing them thoroughly, and then dusting when wet all the affected parts with flowers of sulphur; this will probably destroy the fungus, and the sulphur can be easily washed off the fruit before it is used.

**Planting Lily of the Valley (H. T. H.).**—During fine weather in autumn, or early in spring, before the crowns commence swelling, you may either dig up the whole bed and replant the crowns in small patches in fresh soil, or take out patches from the beds and plant them, placing manure in the spaces made by the removal of the plants: indeed the entire bed should be mulched with manure. There should be spaces of at least 6 inches from patch to patch in both the old bed and the new. If you require very fine crowns and flowers instead of a dense mass of Lilies, twice the space named should be afforded the patches. The ground between the plants should be thickly covered with manure, which should remain throughout the summer months. The plants are partial to a rather shady position.

**Green Glass for Plant Houses (F. R.).**—Green glass may be used advantageously for glazing ferneries and houses for similar plants requiring constant moderate shade, but for other houses we do not recommend it. Most plants require all the light that can be afforded them in our latitude, and the advantage of employing clear white glass is that shading material can be applied when the sun is too powerful and withdrawn when the weather is dull, whereas green glass causes a constant obstruction of the rays of light, and induces a weak etiolated growth. We know a large establishment near London where the disadvantages of coloured glass have been fully experienced, and several houses have been entirely reglazed in consequence.

**Watering (Mrs. Wilson).**—It is far better to supply water to your flower beds in the evenings of hot days than in the morning. If you have only cold spring water and cannot expose it to the sun and air for several hours before using, daily sprinklings will do more harm than good. Stir the soil and form cavities round each plant, then give a copious watering; in the morning as soon as the soil commences drying run a small hoe through it, or the surface will become a network of fissures, through which the moisture will escape and also the heat from the soil. One good watering followed by a mulching, covering the soil with cocoa-nut refuse or manure, will be of more benefit than ten light applications of water without the mulching.

**Cutting Asparagus (A Gardener).**—There is not a doubt that many Asparagus beds have been weakened by continuing the cutting too long in the season, and severing every portion of the growth from the beds. It is on the strength and maturation of the growths in summer that the quality of the produce in spring depends; hence it is wise to apply liquid manure to the beds during July and August, this practice being more effectual than thick coverings of manure in the winter. You will adopt a wise course by producing a

full supply of Peas of the best quality as early in the season as possible, and you will probably adopt the most practical mode of preventing the too close cutting of the Asparagus.

**Low Temperatures for Grapes (Doubtful).**—There is no doubt whatever that Grapes have set freely in a minimum temperature of 50°. We have for years had fine and full sets of Black Hamburgs when the temperature on many occasions was as low as 45° when the Vines were flowering. This, however, was not by preference, but the consequence of what many might term defective heating appliances; still, as the crops were invariably satisfactory the defect indicated was not admitted, and it was not deemed necessary to incur the cost of alterations when good results could be produced without them. More failures occur in setting Grapes by injudicious ventilation and other errors in management than by the fall of a degree or two in temperature from the regulation high standard of 70° for Muscats and 65° for Hamburgs.

**Double Canterbury Bells (H. P.).**—The flowers have a multiplicity of corollas, hence appear to be double, but as the organs of fructification are perfect the plants will produce seed. We have seen, and in fact grown, many almost or exactly similar, and have saved seed from the plants and raised seedlings. If, however, we have desired to perpetuate any particular variety we have removed the spikes immediately the flowers commenced fading and secured fresh growths from the base. You can adopt either or both the modes we have suggested. We prefer single flowers, and the calyx transformed into petals, or the variety known as Campanula Medium calycanthema.

**Raising Cinerarias (Civil Service).**—The fact that you have no hotbed need not deter you from raising plants from seed. At this season of the year no artificial heat is needed, and seedlings may be raised better in a cold frame or even in the open air. If you place 3 inches of light soil in a box that is 5 inches deep, water it well, sow the seed thinly, cover it very slightly, and lay squares of glass over the box, placing it in shaded position in a cold frame, or stand it behind a wall having a north aspect, the seed will germinate freely provided the soil is always kept moist. As the seedlings grow the glass must be propped up, and great care taken to prevent the depredations of slugs, which eat the young plants voraciously whenever they find them.

**Cherry Trees Gummed (J. P., Dublin).**—The shoots sent afford evidence of severe gumming, which has been unusually prevalent during the last two or three seasons, and although the cause is unknown it is generally attributed to a severe check of the sap in the early period of the growth, also to immaturity of the wood. We have trees of various kinds of Cherries against a wall 100 yards long which were previously trained to an open trellis of woodwork, and when in that state they gummed very badly. They were root-pruned and some lime rubbish mixed with the soil, spreading it on about 6 inches thick, and mixing it with the soil to a depth of about 18 inches. This was done over ten years ago, and the trees have been healthy ever since, annually producing very fine fruit. We should in your case take out a trench about 3 or 4 feet from the stem according to the size of the trees, cutting off all roots extending beyond that radius, and in filling up employ some mortar rubbish with the soil to the extent of about a tenth, and working in some of the same towards the stem as far as can be done without disturbing the roots too much. This should be done early in autumn.

**Peach Mildewed (Idem).**—The fruit sent is badly infested with mildew. Apply flowers of sulphur, giving the whole tree and fruit a thorough dusting. Syringe the curled leaves well and frequently with tobacco water, the foliage being no doubt infested with aphides. In the autumn have the trees carefully lifted, shortening back some of the strongest roots extending beyond 4 feet from the stem, preserving as many of the small fibres as possible, especially near the stem.

**Foreing Vines (J. A.).**—Your proposed plan is a good one. A year's rest after long foreing, still starting the Vines sufficiently early for the wood to be matured in the autumn, coupled with lighter cropping, would be of great advantage to the Vines. If manure has been applied to the border yearly a heavy dressing of lime would probably be highly beneficial, spreading it on the surface and letting it remain for a time to be slaked, then pointing it in carefully with a fork. If no manure has been applied we should first remove with great care the surface soil, and after giving a covering of turfy loam and bones, with a liberal addition of wood ashes, then give a thick dressing of good manure, and permit it to remain and decay. This would encourage surface roots, and at the same time afford wholesome food for the Vines. As you have won prizes with your Grapes you will be fully aware of the importance of training the laterals sufficiently thin, that the foliage can be fully developed and each leaf exposed to the direct influence of the sun.

**Pear Leaves Blistered (Kilferman).**—The leaves are infested with the Pear tree blister moth (Tinea Clerckella), which deposits its eggs in May and June upon the foliage; and the larvae, immediately they are hatched, penetrate beneath the cuticle, and by feeding upon the parenchyma cause brown blisters which ultimately become black, and the leaves so affected not unfrequently fall. The insect is full grown in September, and the maggot lets itself down to the ground, where it spins itself a cocoon on a leaf, changes into a chrysalis, and remains as such until the following season. The best remedy is to remove all dead leaves in autumn and burn them, being careful to gather them frequently as they fall, and dispose of them as collected. From the beginning of May the trees should be washed two or three times a week with a solution of soft soap, 3 ozs. to the gallon of water, applying with a syringe, and continuing until the middle or end of June. Nicotine soap at the rate of 3 ozs. to the gallon would be more effectual than the soft soap.

**Exhibiting Kidney Beans (Ignoramus).**—The Dwarf Kidney, or so-called French Bean (*Phaseolus vulgaris*) and the Scarlet Runner Bean (*Phaseolus multiflorus*) are not only distinct varieties, but distinct species; but we doubt if they can be regarded as distinct kinds for the purposes of your exhibition. If the schedule designates "kinds," we assume that only one dish of Kidney Beans are admissible; and if "varieties" is the term employed, the committee may still mean the same, yet a collection including a dish each of dwarf and runner Beans could not properly be disqualified. We should only exhibit one dish choosing the variety that affords the best pods at the time.

**Management of Fruit Trees (J. M.).**—As the trees have been planted three years and grown so luxuriantly we presume they have reached the top of the fence, and in that case recourse must be had to root-pruning to check their vigour and induce fruitfulness. Merely shortening the branches without restricting the roots will be of no avail, as such a course is always followed by strong growths that are in their nature essentially fruitless. The aspect is suitable for your trees. Possibly the growths have been too crowded. The branches should be so thinly disposed that the leaves of one do not overlap those of another. The breastwood should be shortened now, leaving four fully developed leaves on each shoot, all subsequent growths to be pinched to one leaf as they are produced. If the branches are too numerous for training to the trellis

in the manner we have suggested you may remove some of them at once, leaving those that appear the most firm and short-jointed, at the same time endeavour to form a fair-balanced tree. In October or early November, assuming that the trees cover the fence, they may be root-pruned by partially or entirely digging the trees up according to their vigour. Replanting often has a magical effect in promoting fruitfulness; at the same time we think it should not be resorted to when the trees are very small, unless indeed toy trees are required. For purposes of utility we like the trees to attain a good size before checking the roots, as they are then in a condition to produce crops of substantial value. If you require your Cox's Orange Pippin to be dwarf, dig it up and replant in the autumn; if you want as much fruit as possible, thin out the branches well now so as to admit the sun and air to mature those remaining, which should not be shortened except for the purpose of maintaining the symmetry of the tree. After a tree is newly planted and the roots placed near the surface there is no method of keeping them then equal to mulching with manure and not digging round the trees. The moisture attracts the roots to the surface, and the want of it there causes them to strike downwards. Firm soil, too, promotes the emission of numerous small fibres, which conduce to a tree's fruitfulness, light and deep soil encouraging strong fibreless roots and growth correspondingly luxuriant.

**Names of Plants (G. M. N. C.).**—The specimen, which arrived in an envelope and completely crushed, was unrecognisable. (S. B.).—1, *Cattleya Mossiae*; 3, *Begonia semperlorens*; 2 and 4 were withered. (J. B.).—The specimens were greatly withered on arrival, owing to their being in the post during Sunday, but the following were recognisable:—4, *Coccoloba platyclada*; 5, *Cyperus alternifolius*; 6, *Plumbago capensis*. (H. E. B.).—*Pyrus Aria*, the White Beam Tree, incorrectly called the Service Tree in some parts of Lincolnshire. (Winchester).—We are unable to recognise the specimen, which was injudiciously sent in a letter and consequently quite crushed. (C. F.).—The plant to which your refer is *Chrysanthemum frutescens*; the yellow form is *Etoile d'Or*. The specimen sent is apparently an *Ornithogalum*, but too much injured for determining the species. (Philanthus).—The specimen appears to be a portion of a spike of the peculiar *Muscari plumosum*, a variety of *M. monstrosum*, which resembles the forms known to the old writers, Parkinson and Gerard, as *Hyacinthus comosus*.

**The Hive of the Busy Man (Aptarian).**—We are obliged to you for your letter. Our review of Mr. Bartrum's manual is in type, but space cannot be found for it this week.

#### COVENT GARDEN MARKET.—JUNE 8.

BUSINESS remains steady; all classes of goods being cleared and prices well maintained.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons .....	each	6 0 to 8 0
Apricots.....	box	1 6 2 0	Nectarines.....	dozen	0 0 0 0
Cherries.....	½ lb.	1 6 2 0	Oranges .....	£ 100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches .....	dozen	12 0 20 0
Figs.....	dozen	10 0 12 6	Pears, Kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	0 0 0 0
Cobs.....	½ lb.	0 0 0 0	Pine Apples .....	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	0 0 0 0	Strawberries ....	per lb.	3 0 8 0
Grapes .....	½ lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	£ case	12 0 18 0	ditto .....	£ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	2 0 5 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ...	£ 100	1 0 1 6	Onions .....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips .....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas .....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes .....	bushel	3 9 4 0
Capsicums.....	£ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale .....	basket	3 0 3 8
Fennel.....	bunch	0 3 0 0	Shallots .....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips .....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

##### AGRICULTURAL IMPLEMENTS AND MACHINERY.

DIFFERENT periods of the year bring a change of seasons, in which the use of certain implements and machinery come into almost daily and constant use upon the home farm. The extent, situation, soil, and climate will each naturally oblige the home farmer to select and use such kinds of implements and machinery as may be best, most economical, and effective in work upon the land. Our remarks must be considered as more especially offered for the direction of those who are learners and beginners in agricultural management, although we shall occasionally have to introduce to notice entirely new or improved articles well worth the

attention of farmers of considerable experience. In consequence, however, of the multiplicity of the alterations it requires great caution and discrimination on the part of the home farmer in deciding what is really an improvement in his own case, according to the size of the farm, the soil and climate, situation, rotation of cropping, as well as the proportion of arable to pasture land in his occupation.

We must first give our attention to the drill machinery now offered by different makers. As regards large occupations, we must consider that none of these are so large but they come into competition with still more extensive occupations on some parts of the continent, but especially in America and Canada, where the most ingenious steam machinery is in use. We must in consequence avail ourselves of the best implements of every kind. In referring to the corn drills worked by steam power, W. C. Woolnough & Co.'s patent steam double corn drill demands our first notice, because it is so constructed that it may be taken to pieces and made into two 6-feet horse drills—an important advantage, as the headlands cannot be drilled by steam power. The steering and turning at the land's end are easily effected, and the turn-tables to the travelling wheels prevent the headland being cut up. Harrows can also be attached to this drill with turn-tables, guide irons for wire rope, platform behind, and seats in front for the man steering, and patent chain steerage. These are all-important considerations, for it will enable the work of seeding and finishing-off to be done simultaneously and by one operation, so that in case of change of weather the seed is safely deposited in the land—a practical part of the farming business we have always strenuously contended for in our weekly notice of "Work on the Home Farm."

We now have to consider the most economical drilling machinery to be used by horse power, as we must first notice Messrs. Richard Garrett & Sons' general purpose drill for depositing corn and seeds, with or without manure, and fitted with Chambers' patent manure barrel and scrapers. These drills combine the merits of the Suffolk corn drill with those of the seed and manure drill. They are suited to all requirements, and the firm recommends the use of separate implements as being more convenient upon large farms for the various purposes. We, however, cannot entirely agree with this idea, for it must be a very large occupation which can afford implements for every purpose as a matter of economy. Besides, a large number of implements require extensive sheds or buildings for protecting and storing them in readiness for use. Repairs, too, would be a serious item in either case, and it will depend much upon the care taken as to which plan would entail the greatest cost. The box in which the grain or seed is contained is made separate from the manure box, so that when the drill is required for corn or seeds without manure the whole manure apparatus may be removed. The manure-delivery barrel is made upon Chambers' excellent principle, consisting of a cylinder formed of a series of rings, each having projecting surfaces (for the delivery of either very fine or rough manure), which come in contact with the scrapers placed beneath the box, the pressure of which on the barrel is regulated by adjustable springs to the greatest nicety, according to the adhesiveness of the manure used. The manure box is fitted with a novel and excellent stirrer, which never fails to give a constant and regular delivery from the box to the barrel, however moist the contents of the box may be. It will sow from one bushel to any quantity required per acre, and is so easily adjusted by the slide that even when at work the quantity can be varied according to the quality of the soil and without any change of gear wheels. When required the drill can be provided with Chambers' patent broadcast trough, enabling the implement to be readily converted into a broadcast manure distributor. This must be considered a matter of some consequence when we

know that artificial manure of various kinds, particularly when containing nitrate of soda in combination is used, as it frequently must be to keep pace with adverse seasons, for when either Wheat or spring corn look badly the broadcast application of manure is an actual necessity. When the Clovers and other Grasses require manure as well as the park or pasture land we cannot now find labourers, as we did formerly, who can distribute equally over the land light manures by hand.

A one-horse Turnip and manure drill improved next attracts our notice, because such a machine properly constructed is a very valuable one for various purposes—not only for working on the home farm where but few horses are kept, but also to enable the drilling to be accomplished as fast as the land is ready during the day. At the same time we have found when occupying hilly land that the light one-horse machinery of this kind has lightened and facilitated the work of drilling considerably, either with or without manure. This machine, as described by the firm, is capable of being used for drilling in rows either on the flat or ridge-ploughed lands, Turnip and Mangold Wurtzel seeds, with any kind of light pulverised manures. The drill being very light is the draught of one horse or pony only, and also very convenient and easy of management, being 3 feet 8 inches high, and 4½ feet wide.

We have now to turn our attention to the lever horse hoes and their improvements. Those made to cover a space equal to the width of a full-sized drill are said to be economical, because they accomplish so much work; but we view those which are made to cover so much ground as only suited to light soils, or those in a light and loose condition, or with a crop of Lent corn, Peas, Beans, &c., growing thereon, because we contend that they will not do the work required upon winter-sown Wheat, &c., after the soil is settled down hard except in very light sandy soils. These wide hoeing machines are made lighter than ever to reduce the draught, and they have in consequence less hold upon firm settled land; therefore we do not recommend their use upon winter-sown Wheat, or on any crop where the soil is hard, or hard in patches like much of our mixed soils. In such cases we prefer the ordinary one-horse hoe, of which there are various patterns, but they are generally adapted for hoeing between root crops at varying widths. They should have sufficient strength and substance to be converted either into a light scarifier as well as a horse hoe for every purpose of hoeing all crops drilled at widths varying from 2 feet to 9 inches, and with hoes of a suitable form and strength to enable them to move the soil effectually as well as cutting up the weeds. In various crops—when we find the season adverse and the land hard, with the plants looking yellow and sickly, especially as refers to the Wheat crop—the breaking of the surface is so important that it is upon well-tilled land a matter of more consequence in the aftergrowth of the crop than an extra application of artificial manure. In order to carry out these different operations the new expanding five-tine horse hoe made by Messrs. Woolnough & Co. is well adapted, being exceedingly powerful for all purposes, and is supplied with patent blades, shares, knives, and tines, which can be worked effectually without injury to any growing crops.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—This is still of the utmost importance when the work on the land is tillage for roots, or occasionally alternating with labour on the fallows for Wheat. We consider the best time for drilling Swedes for the general purpose of feeding sheep on the land to be from the 8th to the 12th of this month. In the event, however, of early and ripe Swedes being required for cattle as early as possible we have often sown the seed by the 12th of May. For several years in succession when keeping a large summer flock of breeding ewes, as well as feeding a flock in winter, we had a portion of growing Swedes hoed out and singled before the previous year's growth had been all consumed. We have had Swedes in good condition in the land as late as the 18th and 26th of June and the 4th of July. This was, however, during a period when the great value of Mangolds was but little understood. In various seasons we had stacked and thatched all our field Hayricks of the same year's growth before we had finished feeding our Swedes, thus showing that we were fully prepared to meet and contend with late springs and periods of vegetable scarcity; which, however, may now be done better with Mangold, without delaying any corn crops. The fallows for Wheat on the heavy land should not be worked fine, because if occasionally cross-ploughed as the weeds appear in such a season as we have now everything must die, and the land be thoroughly aerated and improved for the production of future cereal crops. In some cases the land intended for Wheat is now covered with luxuriant crops of Tares to be fed off by sheep, and this for outlying land not convenient for dung carting is an excellent preparation for Wheat, especially when the sheep eat a fair proportion of decorticated cotton cake and followed by a backward fallow as fast as the land is cleared of the green crop. This system of folding sheep is an excellent plan in hot weather, for

when field-feeding on grass at daytime they are apt to resort to hedges, ditches, and banks, &c., for sunshade, and thus leave their manure where it does no good. For that reason we prefer folding in the day instead of at night in the hottest seasons. The work for odd horses or single horse work will now prevail, although we approve of a mule or ox for actual hoeing between root crops; yet there is always a large amount of work for stout single horses in the summer time, such as ploughing between the Potato crops where they are planted at a yard apart between the rows, also hilling and second hilling in the lines, as well as single-horse scarifying on the fallows. All this is economically done if the animals are of sufficient weight and power. All the light work, such as horse-hoeing either on the flat or stretch for the Mangolds, early Swedes, Cabbages, Kale, &c., can easily be done by the odd horse, mule, or ox. Paring and burning may now be commenced as fast as the Saintfoin hay is cleared away and the land after burning got ready for Turnips, to be followed by a crop of Turnips fed off by sheep, and afterwards sown with Wheat in November or Barley in March the following year. Horses, too, will in a few days be required for carting the field hay to the stack.

*Hand Labour.*—Men will be required in stacking the hay; but all the heavy manual labour of unloading, &c., whilst stacking hay will now be done by the elevator, so that the dearer hand labour becomes the more we shall see our way to dispense with it upon well-managed farms by the aid of machinery. In stacking hay much judicious care is required to decide when it is really fit to be put into rick to be safe against overheating. When, however, there may be some doubt about this matter, or when rain is pending and the grass nearly dried enough, we recommend layers of good sweet straw between every three waggonloads. If the hay should be required for chaff for horses or fattening cattle the straw, after having performed the office of saving the hay, will also be converted into a valuable feeding material. This is one of the best ways of saving hay; but when it is of fine quality and required for feeding sheep, but lambs especially, it should if possible be put together by itself, and if overheating is anticipated a sack stuffed with straw may be drawn up the rick a little at a time after a load or two is added. In this way a sort of chimney is formed in the centre of the stack, and when finished a hurdle placed over the opening covered with straw for a short time before being thatched will allow the heat to escape, and save the hay. We have, however, saved capital fine herbage of Dutch Clover for lamb hay by turning the rick over, making it up afresh upon a stand adjoining—only involving hand labour; but it must be done at the end of about five or six days, or the second-made rick will not heat sufficiently to be saved from turning mouldy. In order to ascertain whether the rick requires to be turned or not we use an iron rod with a gag at the end, which, after being introduced and left in the rick for an hour or two, a portion of the bay may be pulled out of the rick from any part, showing exactly its condition, and when any danger is anticipated. This is the best plan to enable the home farmer to decide what course shall be taken to prevent damage to the hay.

*Live Stock.*—The fattening bullocks on pastures will now be gaining beef fast, as the grass is healthy and forcing, although not so strong and plentiful as it is in some seasons. Dairy cows, also, are now doing well, for if the grass is rather short it is good in quality. Suckling calves have been offered in large numbers during the past six weeks, and they are likely to pay well as veal this year, for meat importations do not affect the value of veal and lamb as it does beef and mutton, pork, &c. We find fattening calves pay as well or better than milk selling when the farm is inland or away from towns or stations. Ewes and lambs, both in the breeding and fattening, have done well lately, although in various instances food has been scarce; but dry weather is always suitable for the health and fattening of sheep.

## POULTRY AND PIGEONS

### THE HATCHING SEASON.

MR. MUIR, I see, states on page 432 that he finds March eggs hatch better than those laid later on; but as he wishes to know the opinions of others on this subject, I write to say that my experience for several years is the very reverse. I always find as spring advances and the weather becomes milder eggs hatch much better, and I have fully one-third more chickens from eggs hatching in April than in March. Most poultry-keepers have, I believe, found this a very bad backward hatching season, and at first we were unfortunate ourselves, but since March we have had no reason to complain, and have now a fine healthy lot of Dark Dorking chickens.—M. F. SMYTH, Londonderry.

### THE COUCOU DE MALINES.

I HAVE just received from a friend in Belgium the following notes on the "*Poulets de Bruxelles*," known as the Coucou de Malines. He says—"The origin of these birds, according to my



opinion, as well as that of a large number of engraisseurs (or fatteners of poultry), is as follows. About thirty years ago, when Cochins were first introduced into this country, they caused great excitement. All the farmers would have crosses of these birds with our Campine fowls; and these crosses, being repeated with the best subjects produced, became the large breed of fowls so called (de Malines), but really reared in the country between Diest and Beverloo. They are sent poor to the Malines poultry market held once a week, and are purchased by engraisseurs who live in the districts between Malines, Termonde, and Assche. As layers they are not considered the best, but they fatten exceedingly well, and are ready for the table in four weeks. The engraisseurs prefer those without feathers on the legs; they all agree that those fatten more easily.

"This breed has a great reputation as a table bird; so much so that the whole of Belgium, Germany, the north of France, and Holland always send to Brussels when they require large and delicate poultry."

At the last Berlin Exhibition for dead poultry the first prize was given to the Coucou de Malines fattened by a Brussels poulterer.—L. E. WILSON.

### LIVER FOR FOWLS.

SOME little time ago we had a long spell of parching east winds here. Vegetation, which should have been growing rapidly at the time, was at a standstill, and all kinds of insects and grubs which fowls devour with such relish were nowhere to be found. The most inexperienced poultry-keeper knows that the want of these soon begins to affect the hens, especially in the production of eggs, which become scarcer and scarcer until the supply almost ceases. This was the case with my fowls during the period in question, and probably I should have had no eggs until the weather and earth had become humid, had I not, when I saw how matters stood, begun giving a little rawchopped liver daily.

Not more than three or four days after the hens had this they one and all started laying, and did not stop again until rain came, when no more liver was given. I have tried many kinds of flesh food for fowls during such a time, but have found nothing so good as the liver. Their recommencing to lay during the very kind of weather which stopped them, I attribute wholly to the liver, as no other change of food was made. As liver is so cheap and can be easily procured, probably it may be to the advantage of some of your readers to know this, and as we may have much dry hot weather shortly I consider the matter well worth publicity.—J. MUIR.

### THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Friday the 3rd June. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Rev. J. D. Peake; and Messrs. T. W. Anns, A. Comyns, H. R. Dugmore, J. C. Fraser, S. Lucas, and L. Norris.

NEW MEMBERS.—The following new Members were elected: Geo. Carrington, Missenden Abbey, Great Missenden, Bucks; Mansfield C. H. Mills, Tapton Grove, Chesterfield.

The following new Associates were elected: H. J. Buchan, Wilton House, Southampton; Rev. Henry J. Crockford, Hexham Parsonage near Exeter; Mrs. H. F. Dent, Scruton Hall, Bedale, Yorks; Rev. W. A. Hows, Cold Higham Rectory, Towcester; Jas. Read, High Park, Ryde, Isle of Wight; David W. J. Thomas, Ely Cottage, Brecon; John W. Williams, Mildenhall, Suffolk.

H. A. Silvester, late an Associate of the Club, was elected a Member.

MEMBERS REMOVED FROM BOOKS OF CLUB.—The names of the following Members and Associates whose subscriptions for 1880 had not been paid were, in conformity with the resolution passed at the meeting of the Committee held on the 27th April last, removed from the books of the club.

Members.—Dr. Cameron, Epworth, Rotherham; John B. Compton, Hallyburton, Cupar Angus, N.B.; W. Dalton, Allen Grove, Carlisle; Mrs. J. S. Findley, 2, Alleyne Crescent, West Dulwich; Lieut.-Col. Fludyer, Ayston Hall, Uppingham; Lieut.-Col. Lockwood, Bromley, Harlow, Essex; J. J. Malden, Hill Farm, Biggleswade, Beds; W. Wallis, Jun., Eastleigh, Bishopstoke.

Associates.—W. C. Bland, Forston House, Dorchester; J. E. Bloodworth, Jersey Cottage, Cheltenham; Lawrence Booth, Victoria Road, Chester; W. Champion, Griffiths Town, Pontypool; J. Day, 48, York Street, Luton; W. Gatis, George Street, Luton; S. W. Hallan, Whitwick, Leicester; Benj. A. Hogg, 2, Cornhill, Dorchester; W. J. Johnson, Vortersberg, Cork; D. Lewis, Thornhill Cottage, Carmarthen; A. Ogden, Albion Foundry, Ashton-under-Lyne; Capt. John N. Preston, Flaby Hall, Gargrave, Leeds; W. T. Russell, Bude Lodge, S. Norwood; R. Swift, Southwell, Notts.

OWNERS BIDDING AT SHOWS.—The resolution, of which notice

had been given by Mr. Fraser at the last meeting to the following effect—"That the resolution passed at the meeting of the Committee held on the 28th March last, condemning the practice of owners being permitted by Poultry Show Committees to bid for and buy in their own exhibits, be amended by inserting the words 'of birds entered in selling classes' after the word 'owners,'" was proposed by Mr. Fraser. After considerable discussion an amendment was proposed by Mr. H. R. Dugmore, and seconded by Mr. L. Norris, to the following effect.

"That the resolution of March 28th having been passed in relation to a specific case arising in a selling class, and considerable doubt having been since expressed whether or not the same illegality extends to the open classes, it is resolved that (before either limiting the said resolution to selling classes, or confirming its wider significance) the Secretary be instructed to obtain Counsel's opinion on the whole question."

The resolution proposed by Mr. Fraser having been subsequently withdrawn, the amendment of Mr. Dugmore was put as a substantive resolution and carried.

CIRCULAR TO RAILWAY COMPANIES.—The Secretary reported that he had issued the circular to railway companies directed to be sent out by the Committee, and that he had received answers from nearly all the companies. Several of the letters from the leading companies, which were of a most satisfactory character, were read to the Committee, and answers were directed to be sent to some of them.

CIRCULAR TO SECRETARIES OF SHOWS.—The Secretary reported that he had received a large number of answers to the circular addressed to the secretaries of shows as to the dates at which the several shows were to be held. The Secretary was directed to have a list of the dates of the shows so fixed printed, so that copies of the same might be furnished to the secretary of any show desirous of obtaining the same.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane, June 4th, 1881.

The following is a copy of the circular addressed to the secretaries of the various railway companies by the Club—

"I am directed by the Committee of the Poultry Club, a body representing a considerable number of fanciers and exhibitors of poultry throughout the United Kingdom, to draw your attention to the following facts and request your careful consideration of them.

"There are during each season more than 250 shows held in the United Kingdom. In some cases thousands, and in all cases a considerable number of birds, are sent by railway to compete at these shows. The value of these birds is, as a rule, very considerable, and the amount of revenue derived from their carriage by the railway companies cannot but be large.

"From time to time complaints are received by the Committee of the Poultry Club as to the rough and improper treatment of these birds by railway servants. For example: piles of hampers have been seen packed upon their sides on the roofs of railway parcel vans; the baskets containing the birds have been seen to be roughly pulled from the railway trucks, and handled in general with such roughness that the birds must have been dashed against the sides of the baskets. In one case the porters at a junction were seen rolling the circular baskets on their sides along the platform. Tail feathers have been plucked out, and birds thus rendered for a time valueless for exhibition, and notwithstanding the plainest directions on the labels, poultry hampers have been booked by slow routes and otherwise delayed.

"The Committee desire these matters to be brought under the notice of the various railway companies, in the hope that they will, either by giving special directions to their servants by circular or otherwise, take steps to diminish the evils complained of."

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygromie- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1881. May. June.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun. 29	30.092	58.3	58.0	N.E.	58.4	68.0	54.0	101.6	51.0	—
Mon. 30	30.258	63.4	58.7	N.W.	56.8	74.7	45.3	125.7	41.6	—
Tues. 31	30.377	66.2	55.0	N.E.	58.0	80.7	48.7	128.6	42.3	—
Wed. 1	30.232	71.3	57.9	N.W.	60.0	82.7	49.5	127.3	45.0	—
Thurs. 2	30.144	69.6	61.3	N.	61.5	80.0	50.7	131.3	45.6	—
Friday 3	30.151	68.7	58.8	N.W.	62.6	81.0	53.5	123.3	48.8	—
Satur. 4	30.933	71.3	59.0	W.	63.8	82.1	55.4	129.2	49.6	—
Means.	30.171	67.5	58.4		61.2	78.5	51.0	123.9	46.7	—

### REMARKS.

29th.—Overcast and cooler; few drops of rain, but not a measurable quantity; brighter in evening.  
30th.—Fine, bright, and warm.  
31st.—Fine and hot; very bright sunshine throughout.  
1st.—Hazy morning; bright hot day.  
2nd.—Fine, bright, and hot.  
3rd.—Fine and hot; rather stormy-looking at times.  
4th.—Fine, bright, hot, day; gusty wind and much dust; cloudy towards night.

A very hot week; shade maximum temperature averaged 78.5°, which is about 10° above the average. The temperature rose to or exceeded 80° on fine days. No rain throughout the week.—G. J. SYMONS.



16th	TH	Scottish Pansy Society's Show at Edinburgh.
17th	F	
18th	S	
19th	SUN	1ST SUNDAY AFTER TRINITY.
20th	M	Oxfordshire Horticultural Show. Royal Botanic Society—Evening Fête. Burton-upon-Trent [Horticultural Exhibition.]
21st	TU	
22nd	W	

## SPECIALITIES AT SOUTH KENSINGTON.

VISITORS to horticultural exhibitions may be considered as regarding them from two very different standpoints. One section, much the larger of the two, includes the general public, who view a flower show simply as a display of plants which elicits admiration in proportion to the abundance or brilliancy of the flowers and the taste exercised in the arrangement. The other comprises the gardening fraternity, whether competitors or not, who manifest a more critical judgment, and visit an exhibition with the intention of gaining if possible some hints that may be of service to them in their own practice. They desire not only to observe the relative degrees of success obtained by different cultivators, but also the most distinct, useful, and effective plants, whether new or old, that may be advantageously added to the collections under their charge. Thus to a gardener a large horticultural exhibition is both attractive and instructive, and few of those who visited the recent display at South Kensington could have left without having increased their knowledge by some few items of more or less value. Many gardeners, however, were necessarily unable to be present, and these, doubtless, read the full reports that have been published; but as there is much that cannot be fully treated in a report, a few additional observations on the chief features of the Exhibition and the most remarkable plants shown may be welcomed by readers who were debarred from the privilege of personally inspecting the Show.

## HARDWOODED PLANTS.

Those who admire formal training could not fail to be satisfied with the handsome specimens included in the classes for stove and greenhouse plants, as the species and varieties of Cape or New Holland plants which popularly bear the above name have been rarely better represented. There was a most pleasing freshness and vigour noticeable in all the collections, indicating the excellent results that can be attained by careful treatment even with plants that are considered to require more than ordinary skill. Some excellent examples of neat training were also contributed, and for large specimens of slender-growing plants this is a matter of great importance; and though the exact globular style may be obnoxious to some, plants so trained unquestionably possess beauty, though it be of a formal type. However, there is one point upon which most will agree—namely, that hardwooded plants in a small state and untrained are not only ornamental but almost indispensable for greenhouse or conservatory decoration. Groups of these small plants were admired by all, and the healthy free-flowering specimens of numerous species and varieties

in pots varying in size from 60's upwards to 32's or 24's, were all that could be desired or expected in decorative plants. This is undoubtedly the most profitable way to have hard-wooded plants. It does not pay to grow large specimens, whereas those a few years old are of considerable service, and a stock can easily be maintained by purchase, or, where the requisite time can be spared, by propagation.

## ERICA CAVENDISHIANA.

Heaths were not very largely represented, but several of the best summer-flowering varieties were shown, and among them the well-known *E. Cavendishiana* was especially numerous, and in one collection remarkably fine. These were from Messrs. Cutbush & Son, and attracted as much attention and admiration as they received at Regent's Park a few weeks since. The plants, though only in 8-inch pots or even smaller sizes, were notable for their extraordinary vigour, having robust tapering branches of great size and strength, densely clothed with their large, rich yellow, tubular flowers. Very rarely is this handsome and comparatively easily grown Heath seen in such satisfactory condition, and the treatment must have been more than ordinarily liberal to ensure such pleasing results. Many persons are unaware that this useful Heath is a hybrid; yet such is the case, and horticulturists are indebted to Messrs. Rollisson for the production of this among many other forms that originated at Tooting. It was obtained about the year 1840 by crossing *Erica depressa* with pollen from *E. Patersoni*, and strangely combines the characters of the parents, being much more vigorous than the former and erect in habit, but with flowers similar in shape though richer in colour. It received the name it bears in honour of the Duke of Devonshire, and has now deservedly become one of the most popular Heaths in cultivation.

## PYRETHRUMS.

Among summer-flowering herbaceous plants the numerous varieties of *Pyrethrum roseum* deserve a prominent position. Whether planted out or in pots they are very beautiful, and they yield a serviceable supply of flowers with but little trouble. The collections staged at Kensington by Messrs. Kelway & Son and Mr. T. S. Ware well exemplified the progress that has been made with these plants in improving the size, form, and colours of the flowers. The double forms are very attractive; but the general favour was accorded to the single varieties, some of which could not be excelled in brilliancy of rosy crimson tints, while others were unrivalled in the delicacy of the pink or the purity of the white distinguishing the florets. In every case the bright yellow central disk seemed to afford a contrast or relief to the outer ring of colour. That these single forms will grow in favour there can be no question, and they well deserve all the attention they may receive. All the flowers were unusually fine in the two collections named, some exceeding  $2\frac{1}{2}$  inches in diameter, with broad substantial florets forming a head even and circular in outline. Some of the best varieties were the following: In Messrs. Kelways' stand—*Romeo*, bright rosy crimson; *Mrs. Carlyle*, very rich crimson; *Mercury*, clear bright pink; *Boreas*, good pink; and *Albion*, white. In Mr. Ware's stand—*Vivid*, intense crimson; *Ruby*, warm clear crimson; *Morning Star*, fine pink; *Hamlet*, pale pink; *Virginale*, blush white; and *Warei*, very large pure white.

## CRASSULA JASMINEA.

This plant has been already referred to, but it was so well

shown at the great Exhibition that it merits an additional note, as it cannot be too highly recommended for decorative purposes. The plants included in several groups were similar to those previously exhibited by Mr. W. Brown, having heads of white tubular flowers a foot in diameter, and emitting an agreeable fragrance that appears to be very lasting. The flowers, too, are durable; the plant is easily grown, and altogether admirably suited for the conservatory, in which a few specimens are very striking and attractive. Like many of its allies this is a native of the Cape, but it has now been in this country considerably over half a century. It is of easy culture.

#### HARDY CACTI.

One of the most interesting collections of plants out of the competitive classes was the group of hardy Cactaceous plants exhibited by E. G. Loder, Esq., all of which had been collected by himself in the Rocky Mountains at an elevation of 10,000 feet and more. A large number of specimens were contributed, many being in flower, and all in excellent health. The two most attractive were *Echinocactus Fendleri* with large bright rosy flowers, and *E. gonacanthus* with bright orange blooms; but the others having chiefly pink flowers were also noteworthy. The species of *Echinocactus* were *E. Simpsoni*, *E. phoeniceus*, *E. viridiflorus*, *E. viviparus*, and *E. paucispinus*; the *Opuntias* represented being *O. comanchica*, *O. Whipplei*, *O. Missouriensis*, and *O. arborescens*. For the rockery and similar positions these plants are well adapted; and as they are from regions where the temperature at some periods of the year falls very low, they would no doubt prove hardy in any district of England, their chief enemy being excessive moisture.

#### PHILADELPHUS MEXICANUS.

To conclude these notes a brief description of the Mexican *Syringa* or Mock Orange, exhibited by Mr. Walker of Thame, may be admissible. This attractive half-hardy shrub was originally introduced forty years ago to the Royal Horticultural Society's Gardens by Mr. Hartweg, who found it in several districts of Mexico. In the neighbourhood of Jalapa it is said to be cultivated, and it also grows wild in the hedges. It is 2 to 3 feet in height, with ovate leaves and large white flowers of very symmetrical form, and possessing a powerful but pleasant fragrance. Mr. Walker's plant was growing in a pot, and was trained in a pyramidal form to a stake. In the southern counties and sheltered districts it would probably prove hardy, and under such conditions its beauty would be seen to much better advantage than under glass, though the flowers appear to last well.

Such were a few of the specialities among the plants at Kensington, but there were many more that may perhaps receive attention another time.—L. C.

#### A PLEA AND SUGGESTION FOR ENGLISH HORTICULTURE.

It not unfrequently happens that wholesale growers of fruit and vegetables in this country are reproached for their want of skill and enterprise in allowing large importations of foreign fruits to undersell them in their own markets. Something may surely be said in their behalf. Englishmen are not generally wanting in energy, and in all callings there are to be found some persons possessing more than average intelligence, who are capable of looking all round a question and seizing on the points that are likely to tell in their favour.

On conversing some few years ago with one such person, who had an apparently flourishing business as a grower and greengrocer in a large town, he told me that he would not do his son the injustice of bringing him up to so unremunerative a business as his own. I may add that he rented many acres of good fruit and vegetable land just outside his town, with an ample command of manure, and ready access to London and midland markets for his surplus produce. The gist of his argument was obvious. However good the land, and whatever the skill in cultivation, there is nothing but uncertainty as to the result. A season of frost, of drought, of deluge, of blight, or general unfruitfulness (and something of the sort occurs more or less for four years out of five) reduces the condition of many horticulturists to one of incessant doubt whether or not they will be able to pay their way. To an amateur this uncertainty is of comparatively little importance. He plants more fruit trees than he ought to require, and

the same with vegetables; and so, as well as by the aid of glass, he can generally have his table amply supplied. To the market grower, however, even if there may be some exaggeration of the hardship detailed in the case of the one to whom I have just referred, there is no doubt that the character of the season means anything between either poverty or a moderate competence.

The result of fruit-growing in the southernmost portion of Surrey, to go no further back than the last three seasons, will illustrate what has been said. In 1879 tree fruits and many vegetables were a complete failure. There was a sunless summer of incessant rain and of slugs. 1880 was a generally unfruitful year (except in the case of Strawberries and bush fruit), for the wood had not ripened in the previous year, and of such fruit as did promise to come to perfection the plague of wasps devoured or destroyed a large portion. What shall be said of 1881? Perhaps it is too early yet to prophesy. Those who quote the hackneyed, but often baseless, sayings in vogue exclaimed in spring, "We shall have a good fruit year, for the winter has been long and cold, the spring late, and the wood is well ripened." Well, the beauty and profusion of blossom on all kinds of fruit trees this season have been such as can never be forgotten. It would go far to recompense an amateur grower to see his reward, not in the prospect of fruit, but in the rich display of floral beauty which what he may call his flowering shrubs have provided for him. We shall soon know how much fruit will follow this. On the night of April 21st there were many degrees of frost, and the blackened centres of the flowers of Pear trees told too surely that the hope of a full crop of Pears was at an end. Still, some of the later blossoms, especially on the more hardy sorts of trees, will secure, perhaps, a fair supply of fruit. But the season has been one of long and severe drought, and Plums and Apples, especially the former, have, after being well set, fallen in considerable numbers, apparently from dryness of soil. This remark applies chiefly to bush and pyramid trees, for the large Apple trees in the fields and orchards seem still to be laden with fruit.

Again, in this neighbourhood at least, the profusion of caterpillars is as remarkable as the profusion of blossoms. They have invaded all trees alike. On the Gooseberry and Currant bushes we have dealt with them effectually by hand-picking; but on many of the larger trees, where they run riot, they have so riddled and consumed the leaves, that if the trees should recover it will show how extraordinary an amount of mutilation a fruit tree will endure and yet survive. Much of the fruit, too, is scarred and disfigured from the same cause. Even the Oak trees are similarly attacked; half the foliage of some of them is gone. The ground beneath the trees is thickly covered with the black droppings of the little creatures, whilst the combined noises of their tiny jaws, I presume (a sound familiar to all who have kept silkworms), resembles that of a gentle fall of rain—gladdening the ear with the semblance, if not with the reality, of the showers for which we are all longing.

If I have not wearied my readers with unwelcome tidings I would say one word on the prospect of wasps. The long dry spring is the prime condition for an ample visitation of these creatures. Numerous queens appeared early. A day has seldom passed on which we have not slain many such, and we have rewarded children with a shilling a dozen for all they have brought us, but they are still numerous.

But is there not one remedy at least for much of the uncertainty attending the culture of the better kinds of fruit in this country? The late Mr. Rivers especially, genial and enthusiastic as well as practical in all that he wrote, a man with a mind so open and unfettered that he would welcome a promising suggestion even from the youngest hand in his employ, was, as is well known, a persistent advocate of the protection afforded to fruit trees of the better kinds by orchard houses or glass sheds. Cannot such structures, unheated artificially, be erected so inexpensively as to be available for the purposes of those who cultivate fruit as a means of livelihood? The trees in such a case, if not in all cases, being planted in the earth and not in pots, would save much trouble in incessant watering, top-dressing, and renewal of soil.

My own experience, if I may venture to adduce that of an amateur, during several years has taught me that I can rely with confidence on a good crop within the orchard house, however unpromising the prospect may be without. As I was permitted to remark in this *Journal* on a former occasion, and in a bad season, a thin film of glass alone stood between fruitfulness on the one side and comparative barrenness on the other. Is not this subject worth ventilating in the columns of the *Journal of Horticulture* by the skilled professional horticulturists who habitually enrich its pages?—A SURREY PHYSICIAN.

VINES DYING.—A singular misfortune has happened to three of



my Vines; one Black Alicante, two Madresfield Courts. I had a stage in the cool house to put plants on during winter. The ashes on the stage touched the Vine stems an inch thick. After starting and showing fruit they languished, and on examination we found they were growing strongly below the platform. It was at once removed. The young shoots are now growing well. The old rods are dead above the part where the ashes touched them. This is a severe lesson. The roots are outside; the rods within the house, just under the surface of the border. Other Vines in the same house are doing well, but there was no platform or ashes near them. The platform is 18 inches above the floor.—H. T. H.

#### POTATOES AND FROST IN JUNE.

As an illustration of our capricious climate the following notes may interest some of the readers of the Journal:—The temperature on several days for the week ending June 4th exceeded 70° in the shade. On one occasion, at 10.30 in the morning, I put a thermometer outside full in the sun, and in half an hour 120° Fahr. was indicated, 72° in the shade, while the week just ended (11th inst.) reminded us of dark days in October. It commenced with hail showers, and a minimum temperature within a few degrees of the freezing point was registered on the 7th, 8th, and 9th. On looking through some experimental varieties of Potatoes yesterday I noted the following—Myatt's Ashleaf, planted in October last, had all the young leaves blackened. Early Rose was not quite so much injured. Snowflake seems more tender than those named both in top and tuber, for some of them planted in October as an experiment, though covered with fine hay during winter, rotted. Flounder bore this low temperature better than any named. Fortyfold and Magnum Bonum perceptibly affected only; while Champion, planted last and making vigorous growth, is quite unaffected. As showing the advantage of a western aspect, on which the sun does not shine until eleven o'clock in the morning, Beauty of Hebron and Bresee's Peerless, though notably not so hardy, were quite unscathed.—W. J. M., *Clonmel*.

#### POINSETTIAS, THEIR PROPAGATION AND CULTURE.

AMONGST plants which bloom in November, December, and January, few are of easier culture and none more showy than Poinsettias. They are attractive at a time when flowers are highly prized, and their cheerful colour is highly pleasing. Now is the time to attend to their culture, and the best plants are secured when a fresh stock is rooted annually.

Assuming that the plants which flowered last year have been preserved, if placed in a heat of 60° they soon produce young growths all up the stems. It is these shoots when from 2 inches to 4 inches in length which make the best cuttings and the best plants. As they are very succulent it is a bad plan to use the knife to cut them, it being much better to break them off with a heel—i.e., a small piece of old wood attached to the base of each shoot.

Sand and leaf soil are the only two ingredients which need be used in the compost, and the pots should be of the smallest size, or what are known as thumbs. Into each of these two cuttings may be placed, but not in the centre, as they root much better near the edge. They strike quickly in a bottom heat of 80° to 90°, but should be withdrawn from this as soon as the roots are well formed, and after a week or more they may be transferred to 4-inch or 5-inch pots. These must be very carefully drained, and soil of a more substantial kind must be used now. This should be composed of loam, half-decayed manure, and a good quantity of sand in suitable proportions.

In potting the young roots must not be broken, but the soil may be pressed firmly round them, and care must be taken that a check is not given immediately afterwards. To avoid this the plants should be placed in a close warm frame or house, and it may be necessary to shade them from bright sunshine for a few days; but this should not be continued longer than is wanted, as they bear exposure to sun well when growing. A cucumber pit is very suitable for Poinsettias in summer, and we have seen good plants grown in cold frames, where they become dwarf. For some purposes tall plants may be required, but as a rule dwarf plants are in the greatest request. Useful plants may be had in 4-inch and 5-inch pots, and larger pots may not be needed, but if they are the plants should be shifted before becoming rootbound. As it is the point of the shoot which produces the head of bracts, care must be taken to keep this part uninjured. From a plant with one shoot only one head of bloom can be had, but if this can be obtained a foot or more in diameter it will be more ornamental than another plant with two or three puny heads.

From the time the plants become thoroughly established in the

pots until well into the autumn they must have liberal supplies of water, and liquid manure may be given once a week. Strong healthy plants are not very liable to insect attacks, but should such occur careful spongings must be at once resorted to. No shading must be employed after the plants are established, as plenty of sun heat matures the wood and conduces to early and fine heads.

As soon as the nights become long and chilly the plants should be removed to warmer quarters, and to produce bloom they must be placed in a temperature of about 60°. At this time they should have abundance of liquid manure and a light position. Although a temperature of 60° may be required to cause the bracts to develop freely, they do not need so much heat as this when fully expanded, as then they stand well for a long time in a warm conservatory. By placing them in heat as required a long succession of heads will be the result; and the plants must not be suddenly starved into rest, or stock may be scarce when wanted in the propagating season again.

Of varieties hardly anything need be said. The old variety now so well known is still the most useful for general culture.—M. M.

#### JOTTINGS BY THE WAY.

ON my usual visit to the great Whitsuntide Show at Manchester I determined to go somewhat out of the beaten track. I had a desire to visit St. Albans to see what was being done with the grand old abbey, or Cathedral as it will now be called, and to have a look at an establishment which has come into prominence during the past few years—that of Messrs. F. Sander & Co. In common with many others I must deplore what is being done at the abbey. Sir Edmund Beckett has given largely to it, but at what a cost! He has taken away the old western end, and is putting up one of his own design. I do not pretend to be an architect, but I am conservative, and have a notion that they knew better how to build in those days than we do now. At any rate I am not alone, for I met one who evidently was an architect, and he was in a white heat, threatening to bring the matter before the Houses of Parliament.

The establishment of Messrs. Sander is, I should think, perfectly unique. I have seen, of course, the grand establishments of Messrs. Veitch and Bull with their beautifully arranged houses, where everything is in the perfection of order and neatness; and as Messrs. Sander devote themselves almost exclusively to the same work I looked for something of the same sort, but nothing of the kind, as Mr. Sander said, "We do not grow Orchids; we simply import. Our collectors send home plants to us from all parts of the world, and we sell as soon as we can." You enter from the street through one of those country seedshops with which we all are familiar, and you find yourself at once in the midst of a conglomeration of glazed sheds, low, dark, and untidy. You step probably into a hole which sends the mud over your ankles, or you knock your hat against some low patched roof which obstructs your way, and yet amidst all this there is a wealth of Orchids there which is something remarkable. What a sensation when the first plant of Anthurium Andreanum was exhibited at South Kensington! and how fiercely waged the battle as to who had the real one! A controversy, however, soon set at rest that there was but one variety; and here lying on the shelf of a low-pitched house were hundreds of its curious fleshy-looking roots, reminding one more of a parcel of newly born ferrets than anything else I could think of, and besides quantities of seedling plants, so that ere long it must be within everybody's reach. Then here were houses full of Cattleyas, others of Odontoglossums, and again of Masdevallias—all imported plants, many of them in the daintiest little pans all ready for being sent off. Houses were being added to, and everything indicated a very prosperous business; yet it has only existed for twelve years and is carried out with Teutonic energy, for Mr. Sander is one of those citizens of the Fatherland for whom Prince Bismarck has been so pathetically pleading of late that they are elbowed out in the southern seas by Englishmen; whereas the reverse of this seems to be the case. They are the Scotch of the Continent; and as it was once said, If you get to the North Pole it would be ten to one that you would find a store there and Sandy McAlister trying to do a stroke of business with the Esquimaux and polar bears; so everywhere Germans are to be met with keen, frugal, and quick-witted to seize an opening and to keep it to themselves when once they have it.

When I reached Warrington I paid a visit to another small establishment, quite as remarkable in its way, although in this case belonging to an amateur. Mr. W. Bolton is an Auricula and Polyanthus grower and his Auriculas are grown at the back of his house in the town surrounded on all sides by factories and

houses and by a sweet combination of smells which even Cologne could not excel, and yet they were in excellent, nay, vigorous health. The house in which they are grown is not an imposing one, but it is airy. It is not kept in the neatest order, but the plants are sound. The minute directions by which we are told how to manage Auriculas are despised. The soil used is no pasture loam, but common garden soil. The pots are mostly glazed; but as the proof of the pudding is in the eating, so here is a proof that the Auricula is much more accommodating than we are in the habit of giving it credit for. The collection here is nearly a complete one. All the best sorts are represented, not merely the older varieties, but such varieties as Simonite's Frank Simonite and Ben Simonite, Horner's Ringdove, Reed's Aeme, &c. Mr. Bolton was a successful competitor in the classes for Polyanthus at the Show at South Kensington, but does not think very highly of the taste of the south. He says the Loxford Hall collection is one of the largest he knows, but, like most northern growers, thinks the plants are grown too coarsely in the south, too much forced, the sticks being an innovation no northerner can look with any favour upon. Has he the woolly aphid? Yes, certainly, everyone has; but then my experience and that of others has been an advantage to other growers. They look for it and kill it as soon as it appears. It is still, as ever, a mystery. America has now got the credit of it; and up here they say it was imported with some Primulas from the same country to which we owe the American Apple blight, the Colorado beetle, and, some will have it, the phylloxera. Now here is one instance of what the north does in the way of florists' flowers. You may search the whole south of England and you will not find a case like this, and yet through all the large towns of the north such growers are to be met with—enthusiastic, devoted, and intelligent; and it is because we have not this element as we used to have in the south that the revival of a taste for florists' flowers seems so hopeless.

At Grappenhall, where my journey ended, I had an opportunity of seeing how Roses were looking in the north; and if my friend Mr. Tinsley's are an indication of their general condition all certainly looks well for a good Rose year. Some of the recently planted Roses looked seedy, but his own cut-backs, which had all been replanted in the autumn, looked admirably. The buds were showing well, and as there has been more rain here than with us the plants were full of fine foliage; and the copious rain we have had during this Whitsuntide, while it has sadly interfered with the pleasures of our holiday-seekers, has greatly helped on our Roses. I had also an opportunity of talking with my friend Mr. Hall of Rock Ferry, who gives the same favourable account of his plants. I have seen some in the south which look well, so that I think we may reasonably hope for a good Rose year.—D., Deal.

[Since the above was written Mr. Tinsley's Roses have unfortunately been much injured.]

#### DOUBLE FLOWERS.

I HAVE been expecting to see some notice taken of the poetical article of "SINGLE-HANDED" on "Double Flowers," but it seems to have awakened few responses amongst your readers. It would be useless to try to prove to your talented contributor that a double flower may be as beautiful as a single one, and in some cases more so, as for example in that of the double forms of *Ranunculus bulbosus*, *Achillea Ptarmica*, and *Cardamine pratensis*. It would be equally useless to discuss the question whether we ought to grow improved forms of flowers or not—say, for instance, the improved form of Pansies in place of the weed *Viola tricolor*, or the large and varied forms of Chinese Primroses instead of reverting to the poor forms common fifteen to twenty years ago. I quite agree with him respecting the beauty of wild flowers; indeed, I was on my way to gather bunches of wild Tulips and the wood Forget-me-not when the Journal came to hand containing the article in question. These and other denizens of the woods, which are sent to London are perhaps as much valued as Orchids. I also quite agree with him as to the beauty of the Buttercups, though I believe the plant he refers to is Marsh Marigold, and known amongst botanists as *Caltha palustris*. We have a beautiful double form of it growing in the borders, although our soil is a dry one. The wild Hyacinths will grow anywhere without trouble; and when about it I would strongly advise your correspondent to add many more weeds to his wood garden than he has named. Besides those named here, the Woodruff, the Leopardsbane, Monkshood, Primroses, Wood Violets, Wood Shamrock, Lythrum Salicaria, Geranium pratense, and *G. sanguineum* (in open places), Snapdragons, London Pride and other Saxifragas, Campanula latifolia, Lily of the Valley, Orchis mascula and *O. maculata*, Spiraea Ulmaria, Sweet Rockets, and doubtless many other wild flowers

are all suitable for naturalising. I would strongly advise "SINGLE-HANDED" to keep the hoe from them, as I cannot think a carpeting of green grass for such flowers would be in bad keeping.—R. P. BROTHERSTON.

#### FLORAL EXHIBITION AT THE ALEXANDRA PALACE.

THE second of the competitions with table decorations, bouquets, buttonholes, and other methods of floral adornment, was held on Friday and Saturday last, Pelargoniums also being provided for in several classes, and occupying the same position as the Roses at the previous Show. The former portion of the display was very attractive, the competitors numerous, and the general quality satisfactory. The Pelargoniums imparted considerable brightness to the Exhibition, the arrangements as usual being judiciously superintended by Mr. J. Forsyth Johnson.

Dinner tables were well represented, fourteen being staged in the two classes devoted to them. The best table set for twelve persons was arranged by Miss A. Williams, Victoria Nurseries, Upper Holloway, who was adjudged the first prize in a competition of six for a neat and tasteful arrangement. The central vase contained in the upper portion Grasses and Rhodanthes, the base being occupied with Anthuriums, Gloxinias, Pelargoniums, Orchids, Roses, Lilies, and a groundwork of fronds of *Osmunda regalis* and *Adiantum cuneatum*. The side designs each consisted of a plant of *Cocos Weddelliana* in the centre, surrounded by flowers of *Ixoras* and Lilies. The fruits represented were Cherries, Strawberries, Oranges, and Grapes. The second position was accorded to Messrs. Dick Radclyffe & Co., High Holborn, who had a light and pleasing design. Mr. J. R. Chard, Clapham Common, was a good third. Miss A. Williams was again the most successful exhibitor of a table set for six persons, and carried off the chief prize with an elegant yet simply decorated table that was greatly admired. The centre stand was a trumpet-shaped glass vase, bearing in the upper portion flowers of *Centaurea Cyanus*, Rhodanthes, and various Grasses; while the base contained a diversity of Orchids, with Anthuriums, Spiræas, Caladium leaves, and *Adiantum* fronds. No fruit was employed, and this was objected to by some of the other exhibitors, but the table was clearly the best shown. Mr. W. L. Buster, St. Mary's Cray, Kent, and Mr. W. Brown, St. Mary's Grove Nursery, Twickenham, followed in that order, the last-named having a pretty arrangement but containing rather too many yellow flowers, though some handsome Allamandas were very attractive. The competition with hand-baskets of flowers was spirited and interesting, there being no less than eight entries. Miss Williams was first with a charming contribution, comprising flowers of *Chrysanthemum Etoile d'Or*, Spiræas, Dendrobiums, especially *D. tortile*, and Fuchsias, with foliage of *Lonicera aurea reticulata*, Caladium argyrites, and various Ferns. Mrs. A. M. Stuart, 84, Seven Sisters Road, was second with a tasteful collection of Ericas, Masdevallias, Oncidiums, and Rhodanthes; Miss Cluse, Woodford Bridge, being third with a rather heavy design.

Seven brides' bouquets were staged, that very successful exhibitor, Miss Williams, taking the lead with a combination of *Phalenopsis grandiflora*, Gardenias, Stephanotis, *Dracophyllum gracile*, and Rose buds, but with a rather too free intermixture of Fern fronds. Mr. F. J. Taylor and Messrs. Jones & Son, Shrewsbury, secured the other prizes in the order mentioned. Bridesmaids' bouquets were well shown by Mr. Brown and Mrs. Stuart, who were adjudged the first and second prizes respectively. Ballroom bouquets were very bright, but not numerous. Miss Williams had the best three; one containing flowers of *Franciscea calycina*, *Ixoras*, Oncidiums, Roses, Ericas, and Stephanotis was especially tasteful. Mr. Brown was a close second with satisfactory contributions. Flower stands for a drawing-room table were exhibited by Mrs. Stuart, Miss Baines, Palmers Green, and Miss Cluse, who were accorded the prizes in that order for bright and pretty combinations of flowers. For six buttonholes Miss Baines secured the premier award with neat arrangements, in which scarlet and white *Bouvardias*, Rose buds, *Hoya bella*, and Forget-me-nots predominated. Mrs. Stuart was second with neat combinations of Orchids, chiefly Masdevallias; and Miss Williams was a close third.

Pelargoniums were contributed by Mr. Wiggins, gardener to H. Little, Esq., Uxbridge; Mr. G. Osborne, gardener to J. N. Mappin, Esq., Southgate House; and Mr. C. Hammond, gardener to F. Hurst, Esq., York Lodge, Stamford Hill, all staging well-grown specimens, and obtaining the prizes in the above order. Mr. Little's plants were similar to those which gained the chief honours at the South Kensington Show.

The next Exhibition is to be devoted to Cherries and Strawberries, and is announced for the 1st and 2nd of July instead of the 17th and 18th of the present month. It is likely to be very interesting, and there is promise of good competition.

#### PRITCHARDIA GRANDIS.

EARLY in the present year we noted that importations of this handsome Palm had been received in England, and that young plants were being distributed by several nurserymen. We now present our readers with an illustration that well indicates the chief distinguishing characters of the species. A few years ago this Palm was only represented by two specimens from the South



Sea Islands, one of which died, and the other passed into the possession of Mr. Wills, and has since been one of the attractions in the Anerley Nursery, where it recently produced flowers but failed to perfect seeds. The young plants now in this country were, we understand, originally sent to Kew, whence they have been distributed.

All the species of *Pritchardia* are noble Palms, *P. pacifica* and *P. filifera* being well known and admired; but *P. grandis* is, perhaps, unrivalled in its majesty of habit. The orbicular leaves sometimes attain a diameter of 2 feet. It appears to require a stove temperature to obtain it in satisfactory condition, but is reputed to be of easy culture, and no doubt when the plants become more plentiful and more generally known it will rank among

the finest Palms in cultivation. The accompanying figure, for which we are indebted to Messrs. Veitch, is a truthful representation of this fine Palm in a small state.

#### AN AMATEUR'S FAVOURITES.

My object in writing these notes is simply to show how amateurs who, like myself, possess a greenhouse, can keep it gay during almost every week in the year at a comparatively trifling expense. My greenhouse is entirely unheated, and yet I have so far succeeded in keeping up a satisfactory show from the middle of February to the last week in December. I find January the most difficult month to deal with, and should feel obliged if some

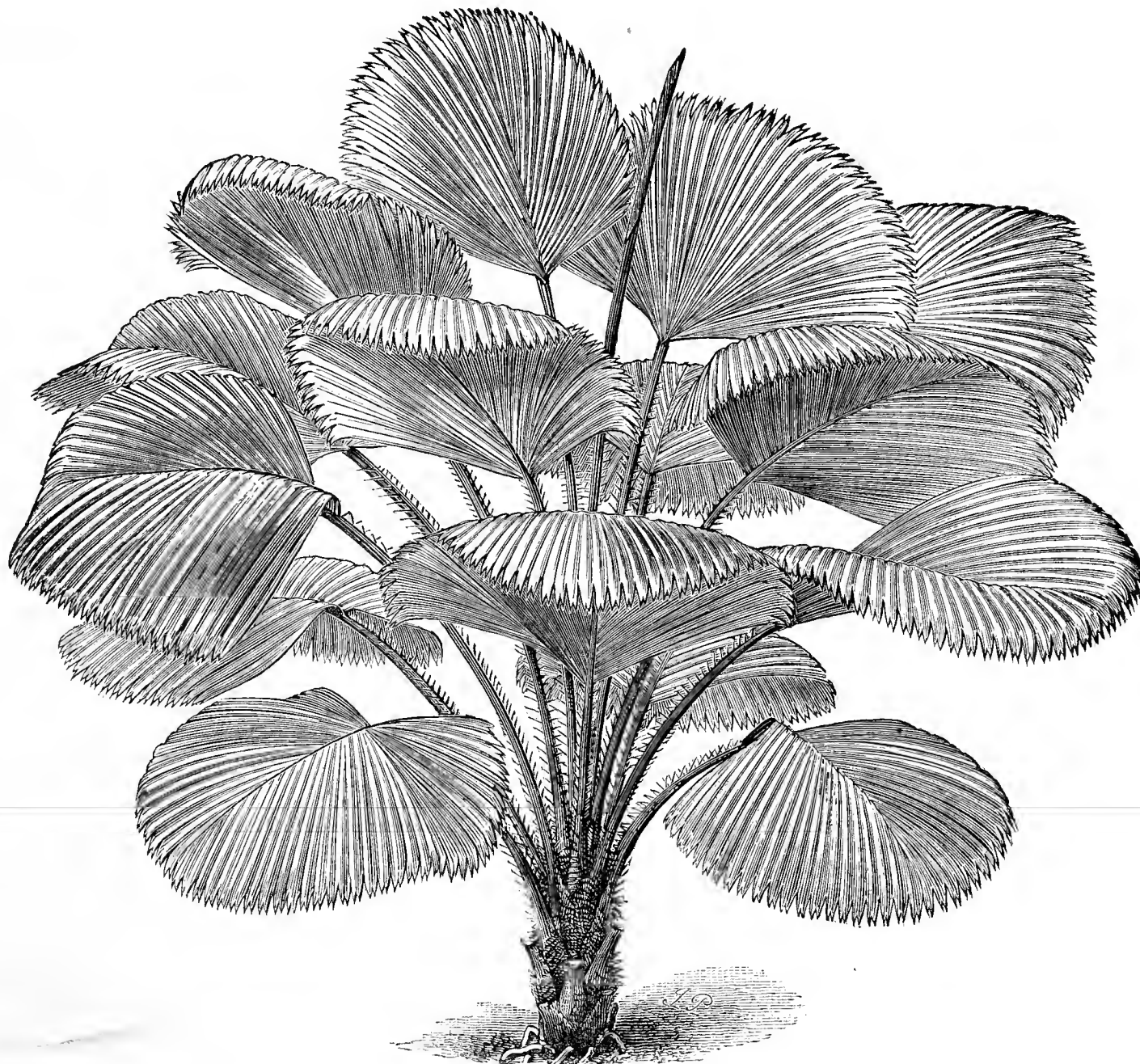


Fig. 108.—PRITCHARDIA GRANDIS.

correspondent would be kind enough to inform me, and others in my position, what plants can be had in bloom without any heat during this dull month. It strikes me that amateurs as a rule try to grow too many plants: to this cause I think may be ascribed many failures. The only plants I grow in quantity are Chinese Primulas, Cinerarias, Calceolarias, Pelargoniums, Balsams, Achimenes, Tuberous Begonias, and Chrysanthemums, which are here named in their order of blooming.

Perhaps I may be allowed to give a brief summary of my operations. The Primula seed is sown either in May or June; after the young plants obtained have been potted singly, they remain in a cold frame till early in November, and come into bloom early in February in an ordinary season. The Cinerarias are also grown from seed, which is sown about the 10th of July, the Calceolaria seed being sown three weeks later. Zonal Pelargoniums are the most necessary plants in a greenhouse; cuttings being

inserted in 48-sized pots at the end of June, three in each pot, they are fit for separate pots in September, and may remain out of doors until November, provided there is no frost. The Pelargoniums are at their best in June; in July I place them outside, and they yield a fresh supply of flowers for at least three months. The mode of culture for Balsams described in a recent number of the Journal I entirely agree with. Last year my plants flowered in 24-size pots, but intend to give them larger pots this season. Achimenes are great favourites with me. If small plants are obtained about this time, and placed in light rich soil and not overpotted, they will flower through August and September, but they must have the sunniest place in the house, and be watered rather sparingly; liquid manure applied in a weak state will prolong their blooming season to a great extent.

I grew Tuberous Begonias last year for the first time. They had not, it would appear, been seen in the neighbourhood before, and



many visitors were simply enraptured with them, one lady vowing that she would pay my greenhouse a nocturnal visit with the object of abstracting some of the "beauties." Seedlings may be bought cheaply in May and June and make a fine display, but of course cannot be depended upon for variety the same as the named kinds. Some of the scarlets and crimsons are certainly magnificent; and readers of the Journal will perhaps be amused to hear that, wishing to increase my stock of named varieties, I proceeded early in April to cut up the tubers as if they had been so many Potatoes. To my great delight my collection had suddenly quadrupled. But great was my disappointment, some three weeks later, on inspecting the tubers, or rather the pieces, in the pots to which they had been transferred, to find that they were all decayed. This is a lesson not easily forgotten, and, *malgré moi*, I was forced to send to Messrs. John Laing & Co. for a fresh stock. I flower my Begonias in 32-sized pots, unless they are extra-large plants, in which case they receive another shift. They can be depended upon to bloom from August to the end of October without heat. Of course they would bloom early in the summer in a warm house.

**Chrysanthemums.**—Small cuttings are inserted in large 60's, three in each pot, as soon as the blooming season is over, the old plants being then thrown away. Early in May they are transferred separately into 32-size pots, and about the end of June receive their final shift into 16's, which size I find the most useful for the Chrysanthemum.

All the above plants I have found to give the least trouble and the greatest satisfaction. My chief difficulty arises with the Calceolarias, as the leaves shrivel up without the least notice just as the plants are about to bloom, and there is no apparent reason for their dying in this way. I may add that if a few Camellias are desired they will make charming companions for the Primulas, whilst Azaleas will add to the fine colouring of the Cinerarias, and half a dozen selected Fuchsias may lend an additional charm to the house when the Pelargoniums are on the wane and the Balsams are not yet in full beauty.—P. C., Jersey.

#### WHAT PLANTS USE.

(Continued from page 468.)

VINES and all other plants use carbon dioxide. They do more—they use up heat and light. It is not very easy sometimes to get people to understand this; at least we have as often been rewarded by a shaking of the head in a manner indicating unbelief when we have verbally tried to explain that they did so. We hope we shall have more success with our pen. This is not the place to enter into a philosophical explanation of what heat and light are, but the following may help those who have given the matter no thought to understand that plants use up light and heat. Burn a piece of wood: while burning, heat and light are given out. Is this heat and light a new production? Many persons regard it as so, but it is not. Both were stored up by the leaves of the growing tree. While water and carbonic acid gas are being decomposed in daylight, as surely as these are manufactured into new form and stored up, so surely are light and heat stored up; and when by the process of combustion these forms are again resolved into water and carbon dioxide, again the light and heat, which were latent in the wood, assume their original form. More than that: according to the rapidity of the combustion so is the evolution of light and heat, and in proportion of the amount of light to the heat in our plant houses is the opposite operation—the composing of hydro-carbon performed. Without heat the process cannot go on; without light the process cannot go on; and without water and carbon the process cannot go on. All these must be present at once to secure the building-up of tissue. The attempt to secure it with any two only will not do. Heat and light together without air may forward plants towards the maturing of their wood, fruit, or foliage; but new material cannot be formed under such conditions. Heat and air alone are not sufficient to do it in the absence of light; and light and air alone are not enough—heat must also be present, and only the last seems to be generally understood.

Bearing these facts in mind, where is the economy of shutting up heat which can never be used? In daylight it is, in one sense, useless without the air; during darkness it is useless without the light. It is only useful in producing precocity at the expense of the quantity and quality of the fruit, for it does tend to the weakening of the Vines. And instead of burning coal to keep up a hurtful heat during the hours of darkness, would it not be far better to maintain the heat during daylight with it, and then keep up the heat with ventilation to the same extent as is usually done without? We think so, and we act so, and are satis-

fied that we are right—right in the way we have read the lessons science has taught us, and right in our practice.

But circumstances compel us to make compromises. With a bright February sun, a house full of tender foliage, and an outside atmosphere a number of degrees below freezing point and in rapid motion, the opening of ventilators would speedily work ruin. We have sometimes, under these circumstances, aired an early house by opening the door into the next compartment and ventilating it freely. Sometimes there is no adjoining vinery. In that case we have opened the front ventilators a little and tacked a strip of scrim over the opening; the air passed slowly through this and escaped all over the roof through open laps. In the case of houses with puttied laps—a bad practice—we have opened the top ones a little and put scrim over them too. We have done this also in the case of Melon and Cucumber pits and have found the practice good.

Ventilating, even in winter, might be a simpler and a safer operation were our hothouse builders better up to their business. Very few houses are so ventilated that the air is warmed before it can circulate among the plants with safety. No better plan has been invented than that by Mr. William Thomson, Tweed Vineyards. "It is termed the hot-air ventilator, and consists of a sheath of copper placed over or encasing a row of the front pipes. The diameter of the sheath is 1 inch more than the hot pipe it encloses, consequently there is an open space all round the pipe inside the sheath. This cavity is fed with fresh air from the exterior of the house by a pipe 5 inches in diameter, which springs from the lower surface of the sheath and passes through the front wall of the house to the external air. There is a valve in this feed pipe to modify the supply of fresh air at pleasure. In the upper surface of the sheath is a double row of holes, so that the moment the cold air comes into the chamber round the pipe and gets hot, expanded, and lighter, it makes its exit through these holes into the general atmosphere of the house." We quote from "Fruit Culture Under Glass," by D. Thomson. Another efficient simple "hot-air ventilator," which may be seen at Brentham Park, Stirling, consists of a cast-iron pipe full of holes laid under the hot-water pipes and communicating with the outer air through the ends of the house. This has also a valve to regulate the air. Ordinary ventilators are all right in summer time, but in winter some such ventilators as the above should be in use in every house where genial temperatures are kept up. Indeed they are the best even in summer, for by their use cold draughts may be avoided.

We have spoken hitherto of the admission of air to vineries and such structures. The principles we have endeavoured to lay down apply in all cases. All plants, however, do not demand the quantities of carbon which strong-growing Vines do. The amount of carbon assimilated by a growing Orchid is trifling comparatively speaking; and if we take into consideration the amount of carbon dioxide that must be continually escaping from decaying sphagnum, &c., the little air that is necessary to keep the air sweet, that which is always entering when doors are opened and through the laps in the glass and otherwise, there can be no doubt that, generally speaking, such plants do not require a change of air to anything like the extent of plants which consume carbon rapidly. Even stoves require little air, in winter at least, for then the plants require little. In summer it is somewhat different, especially when houses are crowded with quick-growing plants, and the roof is covered with Allamandas, Passifloras, &c. Greenhouses require to be ventilated whenever the sun is out to keep down the temperature all the year round, and in dull weather during winter to keep away damp, so that these are generally ventilated efficiently. It is where high temperatures are necessary and when houses are crowded with foliage, that most mistakes are made.

We intended to say more on the use plants make of water in this paper, but it is already long enough, so we will leave that over for another issue of the *Journal of Horticulture*.—SINGLE-HANDED.

#### DOUBLE FLOWERS—BEDDING PELARGONIUMS.

I HAVE been rather amused at the attack made by "SINGLE-HANDED" on double flowers, and thought someone would take up the cudgels, which I see "Y. B. A. Z." has done in the matter of Roses. I have a theory that single flowers bear doubling better than those that have trusses—for instance, double Pelargoniums are not so fine as single, nor would a flower like a Verbena or Phlox Drummondii, or any of the suffruticosa section, be improved by doubling, though this rule will have its exceptions, as with the double pink May, and it seems that the double flowers last longer than the single.

Has that beautiful single Dahlia, the Dahlia imperialis, which

bloomed so well at Cannes in the autumn, ever been tried out of doors in the south of England?

I have finished all bedding-out. The Geraniums were very forward in bloom, as there was so much sun in May. Pearson's strain of Pelargoniums still seem to me to take the lead. Mrs. Leavers and Lady Emily among the pinks; A. F. Barron and The Shah amongst the crimsons and scarlets; also those very good old sorts the Rev. F. Atkinson, John Gibbons, and Charles Smith. Henry Jacoby, which was recommended by one of your correspondents, will, I fear, burn in the sun, but it is a very dark shade of crimson where sufficiently shaded.

I send you rather a curiosity. I had picked some variegated tricolor leaves from Sophia Dumaresque, and they were placed in water on my writing table, and to my surprise began to root in the water. From mere curiosity I left them there, and though the leaves are withering yet the roots are still fresh. I have hardly changed the water. I am going to pot one to see whether it will push up an eye from the base, as they were merely leaves pulled off from cuttings.—C. P. P.

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 24. NEW SERIES.

THERE is another spinning mite, nearly allied to the red spider, that has been described by Boisduval, who found it frequenting the Vine; and it probably occurs sometimes in Britain, though observations made upon it here, if any, have not been recorded in print. This mite, called *Tetranychus vitis*, is hardly half the size of the red spider, and of a yellowish hue. It occurs in little colonies, which spin a number of loose threads upon the leaves of the Vine, quite different to the closely woven web of silk under which the red spider carries on its destructive proceedings. The effect of the presence of *T. vitis* is first the discoloration, then the withering of the leaves; but as it only shows itself upon the Vine towards the end of the season, Boisduval thinks at present there is nothing to be apprehended from it—at least in France, the yield of Grapes not being diminished thereby nor the Vines themselves injured. So good a report cannot be given of the next species I mention—*T. tiliarum*, another minute insect of an orange yellow, and which has at times been found in such swarms upon the leaves of the Lime in some parts of the Continent as to give to the trees, viewed a short distance off, an unhealthy yellow tint, displacing their natural green colour. The injury they do is, as in the rest of the fraternity, attributable to a sucking apparatus, for mites do not nibble the leaves. During some seasons this species has also occurred abundantly upon a variety of plants in the kitchen garden, French Beans and Cucumbers, for instance, to their injury. Fortunately it does not yet come nearer to us than France, though we shall be always liable to have these and other small pests transferred to our shores.

We proceed to another spinning mite, too well known because painfully known to many inhabitants of Britain. Its history, however, has only been made out recently, and its position as a mite decided to be amongst the spinning mites in the genus *Tetranychus*. This is popularly called the harvest bug. The scientific name, *T. autumnalis*, also points to the season of the year when it is generally noticed. As to localities, it appears to be particularly fond of chalky districts and of the coast. Less than the red spider, it nearly resembles it in colour, and from its minuteness it is scarcely perceptible upon any object unless the eye happens to fall upon it in the act of moving. Placed under a magnifier the body is seen to be covered with bristles, and upon the head are two sharp points above the hollow snout. The notable peculiarity of this species is, that although the mite commonly occurs upon vegetable substances, doubtless therefore subsists upon them during its period of growth, it migrates to the skin of animals when it has a chance of so doing. Reputed to haunt cornfields, where it is frequently found, the harvest bug is also common in meadows and amongst Turnips; nor is it excluded from gardens, where persons have in various instances suffered from its attacks after they have been engaged in picking Gooseberries and Raspberries. Where individuals are infested by it, the restlessness and irritation in some cases will cause feverish symptoms. As happens with similar insects, there are certain persons upon whom the harvest bug will not crawl, perhaps because the skin is distasteful from its giving forth some peculiar smell; and it has been stated that small doses of sulphur taken regularly have such an effect upon the skin as to lead the harvest bugs to shun those who may have tried this plan of keeping them off. The remedy being both safe and simple, it may be recommended to those who are liable to be teased by the species. Possibly it might be useful in preventing the approach of other annoying insects. *T. autumnalis* has this peculiarity attaching to its proceedings, that it manages to insinu-

ate itself under the skin, when the result of the mite's burrowing is shown by the appearance of a small pustule. In performing this feat it is assisted by the prominences upon the head to which allusion has been made.

The harvest mites proper have only been partially studied, like many others in this obscure division, and some species that have been named—*Trombidium parasiticum*, for example, are perhaps only the larval stage of species previously recognised. This is a very small six-footed mite, brilliant red in colour, which has been taken upon the wings of the house fly both in England and in America, weakening if not positively killing the larger insect. Various species beside this in the above genus are parasitic, therefore probably rather to be deemed useful than injurious. Curious differences of habit are noticeable in some, depending upon their stage of growth or the locality they haunt; thus *T. holosericeum*, while yet a larva, has been taken upon the legs of spiders. When older and stronger this mite has been observed to feed upon aphides; and if Mr. Stewart is right in his belief that it seizes newly-hatched caterpillars and sucks them dry, the species may be welcomed in gardens. This mite does not spin, hence it is thus distinguishable from the red spider, which it resembles in colour; also it is larger, the body is silky, legs six in the larva, and eight in the fully developed mite. The worthy and indefatigable entomologist De Geer has mentioned a species he calls *T. aphidis*, which takes as its prey the familiar black aphid. This is perhaps the *T. aurantiacum* of recent naturalists, a thick-bodied orange-coloured mite, about which we have only "foreign intelligence" now, though the species may be British. It is to warmer countries than our own—to Africa for instance—that we should have to go if we wished to see mites in their bulky forms, and where we might find them as large, or larger, than a full-sized ladybird. Leaving the water mites and sundry species besides that are related to the preceding, I notice one of the snouted mites, since it has received an honorary mention from Curtis in his "Farm Insects." This is called *Scirus insectorum* by Hermann; it had before been incorrectly named *Leptus phalangæ*, when only the larval form had been discovered. Curtis considers that it checks the increase of the wireworm by its attacks upon the beetle producing that. But it has been taken not only upon beetles, such as the Elaters; it has also been seen adhering to the limbs of the long-legged crane flies. This rather exceeds the *Trombidii* in size; it is reddish in colour, somewhat "scraggy" in figure when young, but plump when adult, furnished with a peculiar snout. The Gamasids are mites parasitic on various animals, several upon beetles. *Uropoda vegetans* is one of these, remarkable for having a cord by which it fixes itself upon the insect, usually upon the under side, where these mites are often found by scores, or even by hundreds, so densely crowded that individuals are placed above each other, though all deriving their nourishment from the beetle infested, which probably succumbs to the attack sooner or later. The body of *U. vegetans* is buckler-like and shining brown. As in the whole group of the Gamasids, the eyes are absent. Some of these mites have been detected upon vegetable substances, seemingly waiting for an opportunity of fixing themselves upon insects that might approach the leaves or flowers. In the genus *Dermanyssus* are soft-skinned mites, parasites on warm-blooded animals, as in the very common *D. avium*, popularly designated the "tick," though not a true tick, and which annoys poultry and cage birds. From the transparency of the skin these mites are seen to change colour as the blood they have taken in undergoes the digestive process. Scrupulous cleanliness is essential.—J. R. S. C.

#### NOTES FROM TASMANIA.

HAVING noticed several communications in your valued Journal commenting upon vegetable produce and the demand and supply existing in London and some of the large towns, I have thought that a few remarks upon kindred subjects might be of interest to some of your readers, though relating to the distant isle of Tasmania. Of course there is a vast difference between the demand and supply in this colony to that existing at home, inasmuch as we have only two towns of considerable size, and their population will appear small to English readers—Hobart Town, 22,000; Launceston, 11,000. But there is one difference in our favour, that the population, rich and poor, all know how to appreciate and use largely quantities of vegetables of all the varieties that are produced in this favourable climate.

"WILTSHIRE RECTOR'S" remarks as to the apathy of the English labouring classes in their use of vegetables is very noticeable when compared with the colonies; for, from the large quantity of vegetables consumed, it is apparent that it is not the result of other commodities being too dear, as bread and meat are both

much cheaper than at home, flour being £9 per ton, bread 5d. per 4 lb. loaf, beef and mutton from 2½d. to 5d. per lb. according to cut; so that it is very evident that a wide difference exists between the labouring classes of England and Tasmania.

"WILTSHIRE RECTOR" suggests that to further the greater use of vegetables, a daily visitation of all streets and alleys with carts and barrows should be made. Such a course would, I think, result in increased sales, as it has done here in the colonies; although not by carts and barrows only, but latterly more especially by the Chinamen, who with bamboo baskets carry Carrots, Parsnips, Potatoes, Beans, Peas, Cabbages, Cucumbers, Marrows, salading, &c., and fruit in season, daily tread through every street and corner, so that consumers have any vegetable they wish thus brought before them daily.

It is surprising the amount of patience and perseverance that "John" exhibits in carrying such heavy loads upon the bamboo day after day, often under a scorching hot sun. They start early in the morning upon their rounds, taking separate districts, and after serving their customers return to work in their gardens after their own peculiar fashion of multitudinous beds and alleys; all their beds being about 3 feet wide and flat on the top, and raised about 6 or 9 inches by the taking-out of the alley between, just allowing room enough to work between. Thus the ground after being worked is never trod upon, as all operations are carried on from the dividing alleys. They appear to be excellent judges of what to grow and how to grow it profitably, as they reject all crops that are a long time in coming to maturity, selecting principally small things, such as salading, Cucumbers, Vegetable Marrows, Kidney Beans, and Tomatoes, which they grow largely and well, preferring to buy the heavier vegetables off European growers. Although there is a great outcry in all the colonies against the Chinese as immigrants, yet they are patronised to a great extent in the sale of their vegetables.

Lannceston is said to possess the most abundant supply of water for domestic purposes of any town in the Australian colonies, which is brought into the town by iron pipes from the St. Patrick river, some twelve miles distant. The Municipal Council grant a supply of water for gardening purposes upon payment of special rates, which is an inestimable boon in this dry and, in summer, very hot climate. This year has been very trying to gardeners; the spring was late and very wet, with quite a plague of slugs, which made havoc amongst the Peas and Carrots especially, two and three sowings having to be made. After a wet spring hot and dry weather set in early in December, as on December 4th I planted out a large breadth of Cauliflower, Savoys, and Broccoli, and after this date until March 25th no rain fell in sufficient quantity to penetrate the soil to much advantage to the crops. English gardeners can form some idea of the effect of such a drought on tender crops under a burning sun, a cloudy day being very rare, and often high winds prevail, drying up everything. Under these circumstances a water tap is a great help, as without its aid not many tender crops would survive and be fit for market.

Tomatoes have during the present season been largely grown here, and have done remarkably well. Year by year the consumption of Tomatoes increases, and as this climate suits their growth the fruit forms a leading article of food during the season. The land is prepared for them as for Potatoes—by ploughing twice, harrowing fine, and planting 3 feet 6 inches apart each way, then keeping the land clean. This is all the attention they receive (no stakes, tying, stopping, &c.), and they continue to ripen up till the end of April, when they are cut by frost.

If of any interest to your readers I will endeavour to send you a few occasional notes from Tasmania.—F. WALKER.

[Such notes as you can send will be very welcome.]



THE action brought by Her Majesty's Commissioners of the Exhibition of 1851 against the ROYAL HORTICULTURAL SOCIETY and the debenture holders to recover possession of South Kensington Garden was yesterday morning decided in favour of the Society, and dismissed with costs, by Mr. Justice Fry, after an elaborate judgment, which we shall give *in extenso* next week.

— WE have received a plant of PAULINE STRAWBERRY from

Mr. George Paul of Cheshunt, bearing a heavy crop of fine ripe fruit. The plant has been dug from the ground, and in the absence of any communication to the contrary we presume has been grown without protection. The distinct earliness with the good size and quality of the peculiar elongated fruit now before us are particularly noteworthy. This Strawberry was figured and described on page 53 of our last volume.

— THE weather last week was of an extraordinary character, snow having fallen in northern districts; and a Lincolnshire correspondent informs us that "frosts on the night of the 7th and 8th inst. quite killed rows of Scarlet Runners, and blackened the growths of the Potatoes in many gardens." We are able to confirm this statement, as we travelled through the county this week and observed by the side of the railway similar results to those alluded to of frost in June.

— AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Major F. Mason in the chair, the following candidates were duly elected Fellows of the Society—viz., Capt. G. W. Archer, R.E.; Capt. O. Barwell, Lowther Bridger, George Frederick Butt, Gerald Carew, Octavius L. Ciare, John Collinson, W. L. Corey, Miss F. de Witte, John F. Vesey Fitz-Gerald, Mrs. Joseph Gibbs, Capt. J. C. Giffard, Capt. H. L. Hallewell, Viscount Hawarden, Sigmond Hoffmann, J. C. Humphreys, Henry James, Mrs. Kearsey, Wm. Ramsay L'Amy, D. P. Loc, Sir Moses Montefiore, Bart., E. D. Morgan, Mrs. Moul, Mrs. Murphy, J. D. Paul, Sir Ughtred Kay Shuttleworth, Bart., Colin W. Simson, George M. Smith, Lt.-Col. J. Stanley, Wm. Swinscow, Mrs. Arthur Tower, George T. V. Wills, and Henry Maitland Wilson. Mrs. Swinscow was elected a guinea Member.

— DAI-KOU.—A correspondent asks what is the botanical name and description of this very large Radish-like root so called by the Japanese. He states that a traveller has suggested it would be valuable as food for cattle.

— WE are informed that Mr. Clark, gardener, Whitley Park near Tynemouth, was very successful last winter in FORCING THE COMMON WOOD HYACINTH. He simply lifted clumps of bulbs from the ground, potted and placed them in the forcing house, and treated them as ordinary forced plants. It stands well when cut, and is invaluable for mixing with all kinds of white flowers.

— "CORNISH SUBSCRIBER" writes as follows on CRICKETS ON CUCUMBERS—"Twelve months since I erected a forcing house for the growth of Cucumbers. As soon as forcing was commenced I heard a cricket or two. No notice was taken of them at the time; now the house is swarming with them. They eat the leaves, but worst of all they bite the fruit, the least touch turning the Cucumbers very crooked, and I have scarcely one straight. If anyone can inform me through the Journal of a good method of extirpating the pest I shall be very grateful."

— GARDENERS or horticulturists who visit NEWCASTLE-ON-TYNE this summer may spend an enjoyable, easy, and profitable day by leaving that town by the 10.25 A.M., book for Pensher or Fencehouses. If the former, after a short walk you arrive at Beddick Hall, the seat of Mr. Morton, a fine old-fashioned place; from thence Lambton Castle is easily reached. A quick half hour's walk takes you from thence to Chester-le-Street, close to which is the celebrated Red Rose Vineries of Mr. Witherspoon. Southill, the residence of Lindsay Wood, Esq., is highly worthy of a visit, and can be easily reached in twenty minutes by walking from the Red Rose Vineries, and the scenery is perhaps not excelled in the north of England. Mr. Thomson is the able gardener at Southill, and has much to show the friends who visit him. A train returns from Durham at about 8 P.M., which speedily conveys you back to Newcastle.



— "R. P. B." sends the following observations on THE WEATHER IN SCOTLAND:—Two or three days in the beginning of June were remarkable for the heat, over 80° in the shade having been registered on the hottest day. The second week has been quite as remarkable for its cold. Hailstorms have been prevalent in the north of Scotland, and frosts have done much damage. On the 10th inst. occurred the most disastrous frost in this neighbourhood. The Vegetable Marrows only have been destroyed here, but much damage has been done to Potatoes in some positions. In one market garden the whole of the early Kidney Potatoes, which would have been ready for market in a fortnight, were cut down. In fields there has also been much damage; and the Turnip crop, which in Scotland is one of great importance, has received fresh injury. This has been an extremely bad season for germinating Turnip seed, on account of the ravages of the fly.

— AT the autumn Show of the North Otago Horticultural Society held on April 17th, the principal prizetaker was Mr. ADAM FORSYTH, late of Stoke Newington, gardener to the Hon. M. Holmes, who obtained the cup offered by His Worship the Mayor of Oamaru, for the taker of the largest number of prizes.

— A REMARKABLY distinct plant for the base of a rockery or borders is DIPHYLLEIA CYMOSA, a member of the Barberry family. The stems are 2 to 3 feet high, each bearing near the summit two large bi-lobed and irregularly cut bright green leaves, and terminating in a cyme of a dozen or more white flowers about half an inch in diameter, containing six oval petals and the same number of stamens bearing bright yellow anthers. The plant is a native of Carolina and Virginia, where it has been found at considerable elevations on the banks of small streams. It will be seen from this that it requires a moderately moist position, where its creeping roots can spread freely.

— ANOTHER pretty rock plant is ERINUS ALPINUS, which at this season of the year brightens many a nook with its purplish pink flowers. It is of dwarf habit, usually attaining a height of 6 or 7 inches. It has small irregularly toothed leaves and racemes of neat flowers, which but for their five petals might be taken from their general appearance to be related to the Cruciferous plants instead of the Scrophularias, their true relatives. The plant succeeds well in a light compost of peat, loam, and sand, and is admirably suited for little recesses of the rockery, where it becomes established if due provision is made for carrying off superabundant moisture.

— WE learn that Mr. W. H. Cloake is now the manager of the metropolitan establishment of Messrs. Thomas Green & Son, Blackfriars Road, the eminent horticultural engineers of Leeds and London.

— MR. EDWARD WILSON writes:—"Having seen my appointment recorded on page 444, I wish to correct the address. Instead of 'Highfield,' Bickley, it is Fernside, Bickley, Kent."

— WE have received a draft of the proposed CATALOGUE OF EXHIBITION ROSES that is to be published by the National Rose Society, and which will no doubt be useful when completed. One hundred and twenty Hybrid Perpetuals are enumerated, and forty-six Teas and Noisettes, but spaces are left for the addition of any other varieties which may be thought worthy of being admitted. The particulars concerning each variety are to be arranged in seven columns under the following heads:—Correct Spelling of Name, Date of Introduction, Raiser's Name, Form of Flower, Colour of Flower, Habit of Growth, and Distinguishing Characteristics. Rosarians will anxiously await the appearance of this work, which if well executed will supply a want felt by many cultivators of their favourite flower.

— A FEW weeks ago we observed a very pretty example of SPRING BEDDING in Mr. C. Turner's nursery at Slough, and though there was no attempt at elaborate arrangement the simple tasteful disposition of the distinct colours in lines produced a pleasing effect. This was particularly noticeable in the central walk that extends through the nursery, where the principal features were the rows of that old but useful bright yellow Wall-flower Belvoir Castle, the bright pink dwarf *Silene acaulis* literally a mass of flowers, the handsome rich-coloured *Viola Clevedon Purple*, the bright-tinted *Viola Blue Bedder*, with marginal lines of double white and crimson Daisies. In other portions of the nursery were some large and beautiful beds of the two *Violas* named above with various edgings.

— A DUBLIN correspondent writes to us as follows on FROST IN JUNE:—"Mr. Bedford, gardener at Straffan, Co. Kildare, was here to-day (9th). He told me the thermometer was 10° below freezing last night, and the frost has injured many bedding and other plants. Ten degrees of frost in 'rosy June,' and in Ireland too, is a phenomenon. We have had heavy but not long-lasting hailstorms during the week, but being rather sheltered and near the sea we do not feel the frost so much as they do further inland."

— WE have received the very unpretentious schedule of the WIRRAL ROSE SOCIETY, the Show of which will be held at Birkenhead on July 16th. In the open class for seventy-two varieties the prizes are £8, £6, and £4. In the amateurs' classes of thirty-six and twenty-four blooms, plate of the value of £10, £5, and £4 are offered, and silver and bronze medals and plate are provided for local exhibitors. The Society's Show last year was one of the finest of the season, and an earnest endeavour appears to have been made to command success this year.

— MESSRS. CASSELL, PETTER, & GALPIN send us the following parts, forming a continuation of some of their serial works. "Paxton's Flower Garden," part 10, which contains an excellent and faithful coloured representation of *Anthurium Andreanum* with descriptive notes. A coloured figure of *Viburnum plicatum* is also given, but scarcely does justice to the plant. In the "Gleanings" are woodcuts of *Luvunga scandens*, *Arnebia echioides*, *Hedychium chrysoleucum*, *Siphocampylos orbignyanus*, *Gaultheria Lindeniana*, *Dianthus cruentus*, *Echeandra terniflora*, and *Lilium Wallichianum*. "Familiar Wild Flowers," part 51, has plates and description of the Yellow Water Lily, *Nuphar lutea*, and the Shepherd's Needle, *Scandix pecten*. "Familiar Garden Flowers," part 28, gives coloured figures of *Begonia intermedia* and *Crataegus oxyacantha*, with cultural and historical notes.

— *Nature* states that "a monument of the celebrated NATURALIST, FREIHERR VON SIEBOLD, was unveiled in the park of the Vienna Horticultural Society on April 22nd last. The monument is 4 metres high, and is in the form of an obelisk with a granite pedestal. The upper part is formed by a very ancient memorial stone ornamented with floral designs, which was originally sent to the Vienna Exhibition by the Japanese Government, and was afterwards destined for this monument. Below this stone is a slab of marble bearing an excellent bas-relief of Siebold, the work of Schwanthaler. The whole monument is surrounded by living Fir trees, which were obtained from the Rax Alpe." The same journal announces the death of "MR. JOHN SANDERSON, one of the oldest colonists of Natal, and well known to European botanists as an ardent explorer of the South African flora. His name is commemorated by the beautiful genus *Sandersonia*."

— A CORRESPONDENT sends the following clipping respecting FRAGRANT CAMELLIAS—"The Vienna *Vaterland* reports that the gardener attached to the Palazzo Ferentino at Naples has, after the labour of years, succeeded in raising Camellias

having a distinct and fragrant perfume. The perfume is described as somewhat resembling Jonquil, and as being very delicate. The flowers themselves are of a tender pale rose tint, and it is only in flowers of this colour that the agreeable fragrance has been hitherto obtained, although the gardener has endeavoured to impregnate white Camellias with it."

## ROYAL HORTICULTURAL SOCIETY.

JUNE 14TH.

NEW plants, Pyrethrum blooms, with several miscellaneous groups of Orchids and other plants, constituted the chief features of this meeting, and visitors found sufficient to interest them both in the Council-room and conservatory.

**FRUIT COMMITTEE.**—Harry Veitch, Esq., in the chair. Exhibits in this department were not very numerous. Mr. R. Gilbert, The Gardens, Burghley, sent a Melon named Burghley Pet, a green-flesh fruit, of moderate size and well netted. It was considered by the Committee a very promising variety, and they expressed a desire to see it again. Fruits of a large Tomato named Conservative Chief from the same exhibitor were admired, and it was recommended to be tried at Chiswick. Some fine clusters of Gilbert's Criterion Tomato were also shown, said to be a seedling from Jackson's Favourite crossed with Vick's Criterion. The fruits were small but very abundant. Mr. Woodbridge, The Gardens, Syon House, Brentford, was awarded a cultural commendation for a dish of well-ripened British Queen Strawberries. Mr. Z. Stevens, The Gardens, Trentham, again sent examples of Trentham Early Fillbasket Tomato, and the Committee confirmed the opinion they previously expressed concerning it. Messrs. T. Rivers & Son, Sawbridgeworth, sent fruits of an early Cherry named Guigne d'Annonay, which somewhat resembled Frogmore Early. The tree was said to have been grown in an unheated orchard house. It was shown with May Duke for comparison, and a first-class certificate was awarded for it on account of its earliness. Specimens of Early Favourite Plum were also sent by the same firm from a tree in a pot which had been placed in a house on March the 27th. A vote of thanks was accorded. Messrs. J. Veitch & Sons, Chelsea, exhibited some extremely large stems of Stott's Monarch Rhubarb; and Mr. J. F. Wilkinson, gardener to Viscount Gage, Lewes, sent a seedling Melon. From Chiswick fruits of Noire Précoce de Strass Cherry were sent, the variety being said to be very prolific.

**FLORAL COMMITTEE.**—J. McIntosh, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, had a group of new and choice plants of considerable interest, including the following:—A white form of Azalea Souvenir de Prince Albert, very free and of good habit; Lilium Kramerii, a neat species with pale pink-tinted flowers; Heliconia aureo-striata, having neat ovate leaves veined with yellow; Carnation Lady Musgrave, a handsome variety, bearing large, full, deep scarlet flowers; Cypripedium selligerum majus, a remarkably fine variety with flowers of great size, the upper sepal being particularly broad; Calanthe Textori, a pretty species with white flowers, the lip blotched in the centre with orange red; Epidendrum falcatum, a curious Orchid, with white three-lobed labellum and narrow yellowish sepals and petals; Hydrangea Mariesi, a fine form, with large globular heads of lavender-blue flowers; Pratia angulata, a hardy plant, also known as Lobelia littoralis, of prostrate habit, with diminutive leaves and abundant white flowers; Spargula pilifera aurea, a form of Spurrey with yellow leaves; several Masdevallias, including M. coccinea and M. ignea, the latter especially bright; Cattleya Wagneri, a white-flowered form, resembling C. Mossiae; C. Mossiae alba; and a group of Tuberous Begonias, chiefly seedlings raised from B. Davisii, very free in flowering, and including some rich shades of scarlet. B. gigas and B. Mrs. Gilbert were two varieties of the ordinary type, with very large well-formed flowers—the former orange scarlet, and the latter of a deeper colour.

A vote of thanks was accorded to Messrs. H. Cannell & Son, Swanley, Kent, for eight stands of double Pyrethrums, comprising forty varieties, including many of great excellence. Some of the most noteworthy were Lizzie Macfarlane, white; Maximum plenum, bright pink; Progress, rich crimson; Mrs. Dix, neat pink; Rose Marguerite, fine rose; N. Twardy, full neat flower, rosy crimson; Wilhelm, good pink; Madame Billiard, neat white; Anemoniflorum sanguineum, very bright crimson; Multiflorum, rosy crimson; Boule de Neige, pure white; and Amphitrite, bright rose. Some fine varieties of Foxglove were also shown.

Messrs. John Laing & Co., Forest Hill, had a fine collection of Caladiums and Tuberous Begonias. The best of the former were candidum, similar in marking to argyrites, but much larger; Madame Lemoinier, with broad handsome lemon red in the centre, and pale green round the edge; and Mithridate, described below. Among the Begonias Mrs. Robert Whyte, scarlet, was noteworthy for the great size of the flowers; Captain Lambert, similarly large, but more brilliant in colour; and Exoniensis, a remarkably handsome variety, with extraordinarily large orange-scarlet flowers. A stand of blooms was also contributed of a great variety of colours from pure white through yellow, buff, orange, and scarlet; some rose tints also being represented. A vote of thanks was accorded to Mr. J. Croucher, gardener to J. Peacock, Esq., Sudbury House, Hammersmith, for a plant of

Odontoglossum crispum variety delicatum, the flowers of good size, white faintly tinged with purple. A plant of a variety of Cattleya Mossiae named aurosum was sent by the same exhibitor. Mr. James, The Castle Nursery, Lower Norwood, sent a plant of Odontoglossum cordatum aureum, differing from the type in the yellowish tint of the flowers. E. G. Loder, Esq., Floore, Weedon, Northamptonshire, exhibited a similar group of hardy Cacti to that he had at the great Show, which is mentioned on another page. Echinocactus Fendleri and E. gonacanthus were certificated.

Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, exhibited flowering sprays of the two handsome climbing plants Stigmaphyllon ciliatum and Bauhinia corymbosa. The former has umbels of bright yellow flowers and cordate spiny-margined leaves; and the latter has corymbose heads of small pinkish white flowers, the stamens very bright pink, and the leaves of the characteristic two-lobed form but very small. A vote of thanks was accorded for the Stigmaphyllon, and a cultural commendation for the Bauhinia. M. H. Voss, Esq., De Montfort House, Streatham, exhibited a plant of Odontoglossum citrosimum Vossii, a pretty form, the petals and sepals of which are pure white, and the lip of a mauve purple tint. Large flowers of Phalaenopsis grandiflora were also staged. Mr. H. Hooper, Vine Nursery, Bath, sent a collection of Pyrethrum and Pansy blooms, the latter including two very striking varieties; a Fancy named Novelty, and a velvety black Show named William Dean. Mr. H. Coppin, Shirley, Croydon, sent several plants of Tuberous Begonias, representing very fine varieties. The best were Thebais, scarlet, very large; Pink Pet, pale pink, large rounded petals; Snowflake, white, of moderate size, and Cetewayo, of the Pearcei type with large orange-coloured flowers. Mr. C. Kimbeley, Stoke Nursery near Coventry, exhibited plants of a bright pink-flowered Pelargonium of the Christine type, named Empress of India, very free in flowering and of good habit. A neat tricolor Pelargonium called Empress was also represented. Mr. Wilkinson, gardener to Viscount Gage, Lewes, contributed a collection of Gloxinia blooms mostly of the drooping section, diversified in colours but not remarkable in size. A vote of thanks was accorded. Mr. T. Dale, Orchid grower to E. Edwards, Esq., Blackwater, sent a plant of Cattleya gigas with very large flowers, the lip of a very rich crimson tint.

Mr. J. Croucher contributed a tasteful group of Orchids, including good examples of Odontoglossum vexillarium, with very richly coloured flowers; Masdevallia Harryana sanguinea has large deeply coloured flowers; Brassia verrucosa, with eighty spikes; and a central plant of Oncidium ampliatum majus, with a very large spreading panicle of bright yellow flowers. Other noticeable plants were Lycaste Deppel, with over two dozen flowers, and Odontoglossum candatum. A silver Flora medal was awarded. Mr. Ebbage, gardener to J. S. Bockett, Esq., The Hall, Stamford Hill, was awarded a silver-gilt Flora medal for a handsome group of Odontoglossum Alexandrae, comprising some very fine varieties. One spike had ten flowers of unusual size, and all the plants were in fine healthy condition. Silver Banksian medals were awarded to the following:—Mr. James, The Castle Nursery, Norwood, for a collection of Orchids, including a fine potful of Epidendrum vitellinum, several Dendrobies, Odontoglossums, and Oncidiums; Messrs. Barr & Sugden, for a pretty group of hardy flowers, Irises and Pyrethrums being particularly numerous and bright; and Mr. Hooper of Bath for several stands of handsome Pyrethrum, Pansy, and Ranunculus blooms, including a good selection of varieties.

First-class certificates were awarded for the following plants:—

*Carnation Lady Musgrave* (Veitch).—A handsome Tree variety, with very large, full, dark scarlet flowers  $3\frac{1}{2}$  inches in diameter. Very effective and free.

*Sarracenia melanorrhoda* (Veitch).—A hybrid between S. Stevensii and S. purpurea, with leaves 6 to 8 inches long, of a deep reddish colour.

*Cypripedium selligerum majus* (Veitch).—A variety of this fine species with very large flowers, the upper sepal being particularly striking owing to its great breadth and rounded form.

*Hydrangea Mariesii* (Veitch).—A beautiful Hydrangea with globular heads of lavender-blue flowers. The colour is very delicate and pleasing, and the plant appears to be of good habit.

*Coleus Miss Simpson*.—This and the following were from that successful raiser Mr. King, gardener to G. Simpson, Esq., Reigate. A very handsome variety with a large neatly-formed leaf, the centre being bright crimson with a tinge of scarlet, margined with bright yellow, and neatly crenated. The brightness of this variety was remarkable, and it was greatly admired.

*Coleus Mrs. Stiedall*.—A variety of dwarf compact habit; the leaves tapering, bright rose in the centre, deeply crenated, mottled with deep brownish maroon near the margin, and edged with green. Very distinct and attractive.

*Caladium candidum* (Laing).—A pretty variety, with neatly formed leaves 7 inches long by 4 inches broad, veined with green and white, suggestive of C. argyrites but much larger than that form.

*Caladium Mithridate* (Laing).—Leaves unusually large, a foot in length and the same in breadth, deep red in the centre and dark green at the edge. A very handsome variety.

*Caladium J. R. Box* (Laing).—Very distinct, of a semi-transparent texture strangely veined with red and green. These are three fine and distinct Caladiums well worth including in collections.

*Echinocactus gonacanthus* (Loder).—A Cactaceous plant with short

globular fleshy stem studded with large white spines, and bearing bright orange nearly scarlet flowers.

*Echinocactus Fendleri* (Loder).—Similar to the above in habit, but with more numerous smaller spines, and rosy purple flowers.

*Lilium Washingtonianum* Scott Wilson.—A Lily raised by G. F. Wilson, Esq., Weybridge, from seed of *Lilium Washingtonianum* sown in September, 1873. The flower is neat in form with yellowish recurved petals spotted with chocolate, the leaves being precisely those of *L. Washingtonianum*, while the flowers are very distinct.

The Pelargonium Society also awarded certificates for the two

following varieties from the Royal Horticultural Society's garden. They were both raised by M. Lemoine.

*Pelargonium Charles Darwin*.—A zonal variety, with large umbels of double flowers of a peculiar bright rosy hue, with a tinge of purple.

*Pelargonium Seedling 29*.—An Ivy-leaf form, with pale pink double flowers in moderately large compact trusses. The leaf is small and neat.

SCIENTIFIC COMMITTEE.—Rev. G. Henslow exhibited monstrous forms of *Cardamine pratensis*, in which double flowers were issuing from the side of ovoid ovaries remaining after the flower had fallen.



Fig. 103.—*AQUILEGIA STUARTII* (STUART). (See page 490.)

They were received from Mr. Gibbs of Chelmsford. Blossoms of *Lychnis Githago* in which numerous flies had been entangled by the long hairs and perished, illustrating Dr. Kerner's theory of the various methods by which "unwelcome guests" are excluded from flowers. A Daisy with ligulate florets issuing from near the centre of the disk florets, forwarded by Tinson of Holloway. Impressions taken from the cut end of Water Lilies appearing to afford a natural dye, by which the exact representation of the lacunæ or air-passages could be made. A pitcher-like leaf of *Masdevallia Lindenii* was exhibited by Mr. James of the Castle Nursery, Lower Norwood.

Mr. Owen of Knockmullen, Gorey, Ireland, forwarded "Jack-in-the-Green" Polyanthus, several instances having occurred with remarkably large sepals; leaves of *Sarracenia flava Drummondii*, and which

had failed to form pitchers; variety of *Viburnum lucidum*, which appears to be much hardier than the usual form. Mr. Owen remarks that about the only loss last winter was the common Fuchsia, though the frost of June 8th cut the Potatoes.

*Diseased Rose Leaves*.—Mr. J. Tinsley forwarded some Rose leaves which are falling from his trees till some are quite bare. They were referred to Mr. W. G. Smith for report.

Mr. Wilson exhibited a fine hybrid Lily between *L. Washingtonianum* and probably *L. Columbianum*. It was from seed sown in 1873, and possessed the foliage of the former species, but had a very distinct flower.

Mr. E. Giles Loder exhibited a fine series of Cacti from the Rocky Mountains, and said to be perfectly hardy. Many were in blossom.



Some were collected at an elevation of 10,000 feet. Many appear to be new to cultivation. He measured plants of *Echinocereus phoeniceus* 13 feet in circumference! A vote of thanks was given unanimously to Mr. Loder for the exhibition of his interesting collection.

LECTURE.—The Rev. G. Henslow commenced his lecture by describing the carnivorous habits of *Sarracenia*, a hybrid plant having been exhibited by Mr. Veitch. He alluded to the different kinds, such as *S. purpurea* and *S. flava* with opened mouths, and *S. variolaris* with a closed one, thus excluding the rain which is caught in the others. The surface of the lid and lip is covered with honey glands, which attract insects, and apparently stupefy them, so that on crawling inwards over the deflexed spines on the surface they get detained by the long needle-like processes below. Though the circumstances under which a digestive fluid is secreted is not thoroughly known, there is but little doubt the carnivorous habit benefits the plant in the same way as it does our English Sundew. A fine blue *Hydrangea Mariesii* from Japan was commented upon, the lecturer remarking that the *Hydrangeas* of Jersey are almost invariably blue, but the cause had not been definitely found out. The origin of the large neuter blossom was explained, one of the natural forms being exhibited where the central flowers are minute and perfect, but those on the circumference of the bunch are neuter, being composed of an enlarged calyx, the flower remaining abortive within. Some Cactuses were alluded to as interesting as being perfectly hardy rock plants from Colorado, some from an elevation of 10,000 feet. They were shown by the collector, Mr. E. Giles Loder of Weedon, Northamptonshire. Double *Pæonies* and *Ranunculus* furnished remarks on the various methods of producing double flowers. In one *Pæony* there was a repetition of corolla and stamen twice over, no pistil being in the centre. In another the carpels and stamens were all changed into petals, but they had assumed different forms respectively. *Iris*, *Gladiolus*, *Sparaxis*, and *Ixia* illustrated the family *Irideæ*, a fine group of which was exhibited by Messrs. Barr & Sugden. The lecturer described the various processes of fertilisation, showing how different they were in each case, yet all belonged botanically to one and the same family.

#### AQUILEGIA STUARTII.

A SHORT time ago a flower of this *Aquilegia* was submitted to us by the raiser, Dr. Stuart, of Hillside, Chirnside, N.B., for our opinion relative to the merits of the variety. As it is one of the finest, if not the very finest, of the *Columbines* with which we are acquainted, we decided to have it engraved. The figure on page 489 shows the character of the flower and its striking contrast in colour; but the richness of the sepals and the purity of the tubular petals must be seen to be appreciated, the former being a rich violet blue with a satiny gloss, and the latter ivory white with deep coerulean blotches. This beautiful variety is the result of a cross between *A. glandulosa* and *A. Witmanniana*, the latter being the pollen-bearer. It was exhibited on the 25th ult. at a meeting of the Berwickshire Naturalists' Club, when it was named by Professor Balfour of the Edinburgh University. Dr. Stuart informs us that the "batch of seedlings have flowered in the open air, and were exposed to the extreme temperatures we experienced in this region during the winter without any protection whatever. Every one acquainted with *Aquilegia glandulosa* (true) knows what a shy flowerer it is. On about a dozen plants of this hybrid I counted one hundred blooms in good order at one time. It is of a darker blue in colour than *A. glandulosa*, and the individual blooms are of larger size. The foliage resembles the parent. I consider it a refined and at the same time a robust and free-flowering variety of *Aquilegia glandulosa*, and as such an acquisition as a hardy herbaceous plant." We congratulate Dr. Stuart on having been successful in adding such a handsome variety to a fine old genus of border flowers.

#### NOTES ON POTTING PLANTS.

ONE of the most important operations connected with plant-growing, and which unfortunately is often unskilfully performed, is potting plants. Amateurs may glean from calendars of operations when and what to pot afresh, but it is difficult to convey in a few words exactly how the work should be done in all cases. Very few kinds of plants are identical in their requirements, and it is for the want of this knowledge of what should be done that proves fatal to many much-loved plants. Cultivators, especially those living in towns, are generally at a great disadvantage with regard to suitable composts. We may recommend turfy loam, peat, and other special soils, but the question is, Where are they to be obtained? The former is not always to be had at a reasonable price; but the latter, and which for a few kinds of plants is indispensable, can certainly be bought in small quantities and of good quality. Those who have spent considerable sums of money on *Ericas*, *Epacris*, *Azaleas*, *Bouvardias*, *Camellias*, and other

hardwooded plants must not begrudge a small sum for suitable soils for them. To attempt to grow them in soil consisting principally of loam, perhaps fibreless and having previously been used in hotbeds, will only end in the loss of the plants. Any of the free-growing softwooded kinds of *Heaths* and the varieties of *Epacris* that have been cut back and are now breaking afresh, should, unless repotted last season, be shifted. Suitable soil consists of two parts good peat, one part each of fibrous loam and sifted leaf soil, with a liberal addition of sharp sand and charcoal. As small shifts only must be given, the soil should be broken up somewhat finely, and it ought not to be either very dry or very wet; the pots used to be perfectly clean and drained carefully, commencing with a large corner piece of potsherd, surrounding this with other large pieces, covering these with much finer pieces, and placing over them a thin layer of moss. Should the soil of the plants to be potted be in a sweet condition and therefore full of healthy roots, the ball ought to remain intact with the exception of the removal of old drainage, and be transferred to a pot of a size to admit of no more than an inch of fresh soil all round. Before potting carefully remove with a pointed stick any sour soil on the surface of the balls, then place a little of the roughest soil on the drainage, next more soil, which, when firmly rammed, will raise the ball to near the rim of the pot. Gradually fill in the soil, rendering it firm with a stick, finishing off neatly to within the depth of the rim of the pot.

*Azaleas* are now growing freely, and as the roots also are commencing active growth, now is the time to shift such as may require it. Large specimens are not repotted often, but young healthy plants should be shifted at least every two years, and what has been recommended for the *Heaths* and *Epacris* is equally applicable to *Azaleas*. All will be materially assisted if placed after repotting in a slightly increased temperature, say in a vinery that is being closed early and syringed freely. Probably in amateurs' gardens there are more sickly than healthy *Camellias* and *Azaleas*, the cause of which may generally be traced to the bad root-action, this being the result of either unsuitable soil, defective drainage, excessive waterings, or all combined. Where the balls are found to be in this unsatisfactory state, on no account shift into larger pots, but carefully pick away the sour inert soil (usually that last given), trim off the dead roots, and repot the reduced ball into as small a pot as can be used. By these means only can such plants be restored to health, and there are many other kinds often to be met with that might with advantage be treated similarly. *Camellias* when in a healthy state are most safely repotted after the new growth is matured and the buds set. Being coarser-rooted, rougher compost should be employed. A rather larger pot may be employed, and the soil will not require to be made as firm as in the case of the finer-rooted plants. No particular compost is absolutely necessary for *Camellias*, but the less fibre the soil contains the greater is the need for liberal drainage and the addition of lumps of charcoal, or, as a substitute, broken potsherds, in order to keep the soil porous. A very suitable compost consists of equal parts fibrous loam and peat, with a slight addition of sifted decomposed manure and sharp sand. If really good fibrous loam is available peat may be dispensed with, employing three parts of loam to one of good leaf soil, with a small quantity of fine manure and sand or road grit. *Camellias* may even be grown in fine loam and leaf soil in equal parts, but much care must be taken with the drainage, covering the crocks with moss. The latter may also be used for the other soils, but in those cases some of the roughest of the soil is first placed over the drainage, and this tends to keep it clear. It must be added, however, that loam which contains lime is not suited for *Camellias*.

A mixture of two parts loam to one of leaf soil, with a small quantity of manure and either sand or road grit, is suitable for *Balsams*, *Fuchsias*, *Chrysanthemums*, *Carnations*, *Tuberous-rooted Begonias*, *Salvias*, *Cinerarias*, *Roses*, *Pelargoniums*, *Petunias*, and other common plants. As the majority of the foregoing are coarse-rooted the more fibrous the loam the better, and it should be broken up roughly. *Balsams* now growing in 3-inch pots may be transferred into 8-inch or 10-inch pots; *Chrysanthemums* may be shifted from 4-inch pots into 10-inch or larger for flowering; *Carnations* from 3-inch into 9 or 10-inch pots; *Tuberous-rooted Begonias* (strong roots) from 5-inch into 10-inch pots; *Begonia weltoniensis* from 3-inch into 6-inch or 8-inch pots; *Salvias* from 4-inch pots or larger into 10-inch pots; *Cinerarias* from 3-inch into 6-inch or 8-inch pots; *Roses* (spring-struck) from 4-inch into 9-inch pots; *Pelargoniums* and *Petunias* from 4-inch into 8-inch pots. These shifts may appear excessive, but if the after-treatment given be right, the results will be satisfactory and labour will be economised.

No plant should be repotted with the soil in a dry state, and

any found to be very dry should be well soaked in a pail or tub of water, and allowed to drain for a time previous to potting. The soil employed being in a moist state, fresh potted plants need not be watered for three or more days according to the weather; and for a time particular care must be taken not to give more water than is required, especially where liberal shifts were given, or the fresh soil will become sodden and sour, and altogether unsuitable for the reception of the delicate roots. At the same time the old balls should occasionally be examined, as they frequently become excessively dry although surrounded with moist soil. In this case a basin should be formed round the stem, and the soil be pierced with a wire skewer; small quantities of water may then be repeatedly given till the ball is properly moistened, without saturating the fresh soil. This may appear a small matter, but it is very important, and may save the life of many a valuable plant.

Those who possess a plant stove have special need of good soils for potting. The majority of heat-loving plants require a liberal quantity of good peat to root in. Many Orchids will thrive in a mixture of equal parts of turfy peat, sphagnum moss, and charcoal. As a general rule the pots for these plants should be at least half filled with crocks, and the plants raised above the level of rims. A compost consisting of two parts of roughly broken fibrous loam, one part each of peat and leaf soil, with a small quantity of decomposed manure and a good addition of sharp sand, broken potsherds, or charcoal, will be found suitable for Caladiums, Gloxinias, Begonias, Lycopodiums, Ferns, Coleuses, Crotons, Draecenas, Allamandas, Stephanotis, Cissuses, Bougainvilleas, Eucharises, and other similar plants. Much might be said on the subject of potting, but for the present we only advise the use of clean pots carefully drained; giving liberal shifts to those plants that are coarse-rooted, such as Crotons, Caladiums, and Allamandas.—I. M.

#### PRIZE BOILERS.

A CURIOUS accidental omission occurs in our report of the boilers that were exhibited at South Kensington on the occasion

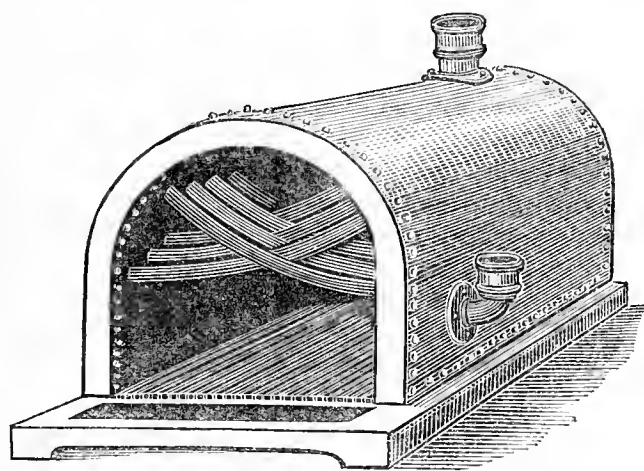


Fig. 110.—Greens' Silver-medal Tubular Saddle Boiler.

of the great Show there. The apparatus to which the silver medal was awarded is described on page 462, but the name of the exhibitors, Messrs. Thomas Green & Son, Leeds, was not mentioned. As so much interest attaches to boilers, especially

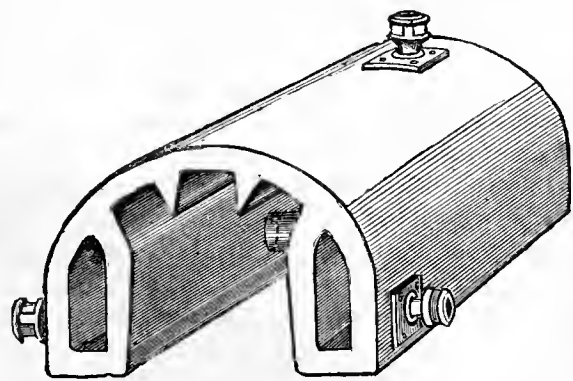


Fig. 111.—Warhurst's Bronze-medal "Ben's Boiler."

to those for which prizes are awarded, and as it is impossible to explain the features of boilers without figures, we submit engravings of Messrs. Greens' silver-medal tubular saddle, and Mr. Warhurst's bronze-medal flued saddle boilers, so that our readers can comprehend their nature and form their opinions on their merits. Without saying a word against any other boilers

that were in competition, we have no doubt that those to which the Judges made their awards are strong, durable, simple, and quick generators of heat. The two figures now submitted, and the descriptions on the page quoted, will enable the two boilers in question to be fully understood, and it is not necessary, therefore, to refer to them at greater length.

#### GLASS STRUCTURES FOR AMATEURS.

**PLANTING VINES.**—The canes will have to be procured in autumn or winter, making choice of those with short-jointed well-ripened and moderately strong wood. Cut them back to such length that when planted there will be sufficient stem to reach to the trellis. Winter them in a cool house or in a shed, the roots especially being protected from frost. The soil in the pots must not be allowed to become very dry, but should be kept a little moist to secure the vitality of the roots. In March place them in the house, from which frost must be excluded, but not kept at more than a greenhouse temperature—viz., 40° to 45° artificially, ventilating at 50°, and fully above that temperature. Keep the canes upright to insure the upper eyes breaking first, and the soil moist. When the shoots from the uppermost buds are a couple of inches long turn the Vines out of the pots, carefully remove the soil from the roots, and spread them out as straight as possible, working the soil amongst them, and cover about 3 inches deep. Give a good watering at a temperature of 100° to settle the soil, and mulch with about 2 inches thickness of short manure. Syringe the canes two or three times a day—i.e., morning, early afternoon, and at about 5.30 P.M., and shade from sun until established. The house should be kept rather close, ventilating from 60°, and allowing an advance to 70° or 75°, closing early in the afternoon, but not so as to raise the temperature over 80°; the minimum or night temperature should be about 55°.

When the roots are working freely in the fresh soil, as will be known by the shoots growing freely, make choice of the best for training up the trellis, and stop the others gradually at the fourth to the sixth leaf, not rubbing them off as is often done, every leaf being of consequence in the manufacture of roots. These supernumerary growths may be allowed to remain until the leading shoot or cane is growing fast and is well advanced up the trellis, when they may be removed close to the rod without any fear of bleeding, not removing them all at once but by degrees. The main shoot should be allowed to make all the growth possible, and the laterals also should be allowed to extend, but must be kept down so as not to interfere with the principal leaves, especially at the bottom of the trellis. The cane may be stopped when the bottom of the trellis is reached, or in the case of a half-span or span when the full extent of the trellis is passed over.

Copious supplies of water will be necessary, and the surface should be frequently damped to encourage surface-rooting; and besides sprinkling available surfaces in the early part of the day, the Vines should be syringed in the afternoon of fine days when the house is closed, which should be done early, the temperature, however, not being raised above 90°, and at night it should fall to between 60° and 65°, but no artificial heat need be employed after May.

By September the canes may be as thick as walking sticks (and there is a difference in those) and have eyes like nuts. The wood must be ripened and the eyes plump at least at the bottom of the trellis to the extent of about a yard. This may be effected by lessening the supply of water to the roots, and discontinuing the syringing as well as admitting air more freely, and leaving a little on at night so as to promote a circulation of air. The laterals also should be shortened, commencing at the bottom of the trellis and cutting them back by little and little until those at the first 3 feet of cane on the trellis are brought close in by October. The growths will as yet be active, which, however, it is little use encouraging; therefore remove part of the laterals and shorten others. If the wood early in October is not brown and hard, especially at the lower part of the trellis, fire heat must be applied, and the house ventilated day and night, which should be continued until the wood is ripe, the atmosphere being kept dry, and no water given at the roots except to keep the soil moderately moist. Either the wood will be ripe in November or never, and the house should be freely ventilated except during frost, and the foliage will soon ripen and fall off.

When the foliage has fallen cut the canes down to a bud at about 3 feet from the bottom of the trellis, and at once have them washed with soap and water, and then dressed with an insecticide, the house having previously been thoroughly cleansed. The border, particularly near the stem of the Vines, should be given a top-dressing of turfy loam with about 20 per cent. of bone dust, the loose surface soil of the border having been scraped off, making

it moderately firm. The top-dressing must not exceed 3 inches in depth. The temperature through the winter should be kept at 40° to 45° on account of the plants, or if there are no plants merely exclude frost. We have then a clean house and Vines, and everything ready for a fresh start when the time comes, instead of house and Vines being dirty until the very last moment before starting.

In March of the second year depress the canes, bringing them well down so as to form an angle of at least 45° with the upright stem to the trellis, and keep them there, and damped two or three times a day until all the eyes have broken and the growths are about a couple of inches long, when the canes may be secured to the trellis. The shoot from the uppermost bud should be trained as leader, and treated precisely as the one of the previous year; and, as it will probably show fruit, do not allow it to remain. The side shoots on the rod (for it is one now) should be disbudded, leaving one growth say to the right at the bottom of the trellis, another on the same side at as near 18 inches above it as possible, and a third on the same side as near the leader as may be practicable. On the other side of the rod retain a shoot at 9 inches from the bottom and another 18 inches higher up, so that there will be five side growths and the leading shoot or cane. Remove all the others.

Upon each of the side shoots a bunch of fruit may be allowed, for with the leader allowed to extend roots will be plentiful and able to cater for the crop, provided food is supplied by watering. Stop the shoots at about 2 feet, which is half the distance between the Vines, and the laterals stop at the first leaf for the two first leaves next the rod, but the others may be allowed to make three or more leaves before pinching out their points. The future stopping must be regulated by the space, allowing no more foliage as regards the bearing part of the Vine than can be fully exposed to light. These side shoots will need at the winter pruning to be cut back to two buds, and are then spurs; the leading shoot or cane be shortened back as in the preceding season, but may be left a little longer, say 4 feet 6 inches, and afterwards subjected to the same treatment as the part below. In this manner the Vines will ultimately have rods with spurs or shoots, according to the time of year, on both sides at 18 inches distance apart, and their treatment as regards stopping will be the same as for the first-formed side shoots. The only difference will be that two instead of one shoot will be originated from each, one of which only must be retained, the other being rubbed off so soon as the best show of fruit is discernible.—G. ABBEY.



#### KITCHEN GARDEN.

CUTTING Asparagus should not be continued longer than is absolutely necessary, as it is very important that the plants have sufficient time to make good growth and allow the buds for the ensuing season's supply to become matured. Abundant supplies of liquid manure may be given, and in exposed situations it is advisable to secure the stems to stakes a few feet distance apart and connected by tarred string. Seakale must be kept from seeding, and if the crowns are very much crowded thin them so as to leave two or three to each strong root. Liquid manure will assist the growth, similar remarks applying to Rhubarb. Peas should be copiously watered. When the plants in later crops are too numerous thin them out to about 2 inches apart. These may be well mulched with litter or manure and staked as soon as fit. Early Peas may yet be sown. Afford water abundantly to Scarlet Runners, and see that they are mulched with littery manure. Earth up the earliest Celery, plant out for succession, prick out young plants from beds for late supplies, and prepare trenches, the space between them being appropriated for Lettuce or summer Spinach. Take advantage of favourable weather to plant out Cauliflowers, Savoys, Brussels Sprouts, and Broccoli as ground becomes vacant. Maintain successional supplies of Turnips by occasional sowings as required, also Radishes and Lettuces. Sow Endive for early use; the Round-leaved Batavian and Green Curled are the best. Those earlier sown should be attended to in transplanting before they become too large. Sow Rosette Colewort, prick

off the seedlings when large enough, and eventually plant 15 inches apart every way. This is very valuable for winter use. Sowings of French Beans may still be made as necessary. Globe Artichokes in bearing, also those planted in spring for autumn supply, will require abundance of water to prolong the bearing season. Vegetable Marrows and Ridge Cucumbers must now be earthed up, pegging the shoots at equal distances apart over the surface of the ground, the glasses or other covering being removed or the handlights raised.

#### FRUIT HOUSES.

*Melons.*—Sowings may still be made according to the requirements of the establishment; and for frames and dung-heated pits a sowing now will, under favourable conditions, produce plants that will yield a supply of ripe fruit towards the close of September. Those having light well-heated houses may continue sowing until the middle of July in order to maintain the supply up to November. A good bottom heat should be secured to young plants about to be turned out, and this will lessen the necessity for fire heat, of which only a little by night will be required. Remove laterals freely where the fruits are fast swelling, and afford support to such as are becoming heavy. Maintain a temperature by artificial means of 70° to 75°, affording water or liquid manure abundantly to those with fruit swelling off. Maintain a moist atmosphere, syringing the foliage moderately at closing time; shade only to prevent flagging. In pits and frames with the fruit coming in afford the full benefit of the sun, with a free admission of air and very little water. Continue attention to instructions in previous calendars with respect to fertilising the flowers, also bestowing liberal attention in stopping, training, thinning, and earthing-up after the fruits have set.

*Vines.*—Cold nights still necessitate the use of fires, but they must be extinguished early on fine mornings, when ventilation will require careful attention, admitting air at the top of the house, gradually increasing the supply as the sun gains power; and when the maximum temperature has been reached the front ventilators may be opened, but cold draughts or sudden depressions of temperature must be carefully guarded against. Copious supplies of tepid water will be needed by inside and outside borders; liberal mulchings in dry seasons also encourage surface-rooting. Proceed with thinning late Grapes, and maintain abundant moisture to assist the swelling and prevent the attacks of red spider. Keep laterals well stopped after the space is covered with foliage. Newly planted Vines which are growing freely must be encouraged to make as many branches as possible by closing the house early, syringing freely on fine afternoons, and keeping the surface of the border moist.

*Cucumbers.*—Fire heat as yet cannot be dispensed with at night. Examine the plants weekly, well thinning out the old growths, and afford copious supplies of liquid manure twice a week. Syringe at closing time, but avoid morning syringing, maintaining, however, a moist atmosphere all day in bright weather to secure a healthy and fruitful growth. Pits and frames should be watered and closed about 4 P.M., or earlier, according to the weather, affording liquid manure occasionally.

#### ORCHARD HOUSE.

Insects are now troublesome, and in order to prevent them spreading syringe the trees every afternoon with the garden engine. It is important that this be done sufficiently early to allow the foliage to become dry before nightfall. If the syringe fails to keep the aphides in check recourse must be had to fumigation. The shoots of the Cherry trees infested with black aphides should be dipped in tobacco water, and whilst wet rubbed gently with the fingers, as the insects have the property of throwing off the water, syringing well the following morning. Syringing with clear water will mostly be sufficient to prevent the increase of red spider; but if not, syringe with nicotine soap at the rate of 3 ozs. to a gallon of water. Attend to the requirements of the trees in stopping and removing superfluous growths. Afford water, and if necessary liquid manure abundantly, surface-dressing with rich material. During warm weather the ventilators may be allowed to remain open at night, taking care to close them on cold nights, especially when high winds prevail.

#### FLOWER GARDEN.

Roses are growing freely at last, and should be examined frequently



for grub and aphides, unfolding any curled leaves, and syringing with tobacco water, a gallon of juice being sufficient for six of water, adding 2 ozs. of soft soap to every gallon. As the weather is dry syringing will be beneficial, supplying liquid manure and mulching with short manure. Climbing and pillar Roses should be neatly tied to their supports, removing all decayed flowers. Climbers and other wall plants must have their growth regulated, thinning them where too crowded and laying in wood as necessary, giving a good washing with the garden engine to cleanse the foliage of dust and insects.

The stock of spring-bedding plants now requires attention. Double Daisies, Primroses, Polyanthus, and Auriculas may be divided and planted out on a partially shaded border. Cuttings of Pansies and Violas inserted on a shady border will soon root and make strong plants by autumn. *Myosotis dissitiflora* may be treated similarly. Prick out seedling Wallflowers, Antirrhinums, and other perennials intended for spring and early summer flowering. Insert cuttings of double Wallflowers, Rockets, and Sweet Williams on a north border or under a handglass. Sow Brompton and Intermediate Stocks on a north border. Prepare pipings of Pinks, and insert them under handlights. Sow Hollyhock seed in rich light soil, and prick off earlier seedlings. Dahlias and Hollyhocks require stakes; any of the latter for showing should be trained with one stem, reserving the most promising. Make a final sowing of Mignonette and Sweet Peas.

Herbaceous plants need constant attention in staking and tying as they advance in growth. Avoid bundling the growths, as the plants are never seen to advantage, the stems being drawn and many of the principal leaves destroyed by depriving them of light and air. When one stake only is employed the branches should be looped up separately. Before staking remove the weakest shoots, thus concentrating the vigour in those retained. Any of the stronger growers will be benefited by liquid manure and a mulching of manure. Plant out late-sown Stocks, Asters, and Zinnias in well-enriched soil, and when they are established mulch with short manure. Annuals sown in masses in beds or borders should be freely thinned out and not allowed to suffer from drought, or they will grow weakly and flower poorly.

Calceolarias, Verbenas, and Violas may have their growth promoted and the flowering prolonged by a surface-dressing of short manure. Attend to bedding plants in watering, removing bad leaves and decayed flowers, pegging down such as require it, and secure sub-tropical plants to stakes.

#### PLANT HOUSES.

*Greenhouse.*—Fuchsias that began to flower early should now be regularly supplied with liquid manure, and well syringed every afternoon to keep down thrips and red spider. Plants required for flowering at the end of August or beginning of September may be plunged out of doors in a sheltered but sunny position, keeping the shoots stopped, and they will make compact growth. Due attention must be given to training, and occasional applications of liquid manure will be advantageous. Cockscombs must after the flowers show be liberally supplied with liquid manure, keeping them near the glass in a pit or frame, where they can receive a little heat and abundant moisture. Late Balsams should be potted and grown on, as they will be useful late in summer.

Petunias in small pots may be shifted into larger sizes, and they will be useful in autumn. Turfy loam, with a fourth of well-decayed manure or leaf soil and a little sand, suit them well. Avoid over-potting; 6 or 7-inch pots are large enough.

Vallotas should be well supplied with water and liquid manure, and have light airy positions, so as to mature the growth. In order to obtain late flowers plants may be placed out of doors in a sheltered position, keeping them duly supplied with water, removing them to a house in September or when the flower scapes appear.

Kalosanthes may be placed outdoors in the full sun to insure the maturing of the growth. They must not be allowed to shrivel, and if in small pots they should be plunged in ashes to prevent the soil becoming dry too quickly. Cactuses may be similarly treated.

*Clianthus Dampieri* deserves a place amongst the most select plants, but it is impatient of being repotted after it attains a good size, and

should therefore be transferred from the small seedling pots to 9 or 10-inch pots. Grow the plant in a pit or frame kept rather close, but not shaded through the summer, and in winter a warm greenhouse or intermediate temperature is suitable. It succeeds best in fibrous peat and an admixture of nodules of charcoal, and may have clear weak liquid manure when in free growth. A damp cold atmosphere is injurious, also excess of water, and if kept too hot in summer it falls a prey to red spider. Seed may be sown in gentle heat in 3 or 4-inch pots, and when the seedlings are a few inches high transfer them to the large pots.

## THE BEE-KEEPER.

### ARTIFICIAL SWARMING.

IN the calendar of operations for May I sketched in outline some modes by which we can most helpfully to ourselves and bees secure increase in the number of our colonies, but a request that further details should be given induces me to return to the subject.

All *habitués* of our bee shows are now acquainted with the operation of driving, constantly selected as it is for public display, since nothing we can exhibit to the uninitiated is more likely to excite astonishment, or is capable of subserving a greater variety of useful purposes for those who still adhere to the time-honoured skep.\* But the manipulation of frame hives, though much more simple and agreeable, is not so easily made part of the attraction of a bee tent, and hence needs the more careful explanation here.

By far the larger number of our bee-keepers are absent from their apiaries during the day, and to such anxiety grows with the prosperity of their colonies; for the dense population of the pet stock on which the brightest hopes are set, and for which the temporary super is already prepared, is quite likely to leave for "pastures new" while we are absent and no watcher is at hand.

That this kind of vexation can be reduced to a minimum so small as to be unimportant is certain, while it is also true that the most carefully and skilfully tended apiary may occasionally throw out a natural swarm quite against the will of its owner. In my own case this occurs about once annually from between twenty and thirty stocks.

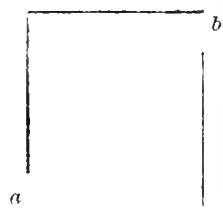
Preparation for colonising consists of two steps—the raising of drones in number, and the starting of queen cells. If a stock is deprived of its queen the oft-explained process commences of selecting eggs or young larvæ, and then so laterally expanding the cell that those surrounding it are more or less obliterated. Dosing with immense quantities of food follows, and in due time (sixteen days from the egg-laying) a queen is produced; but when under normal circumstances with the queen present a swarm is determined on, the plan differs somewhat in some cases from that described, for I have indubitable evidence that at times the queen actually lay eggs in partially formed queen cells—cells, that is, that have been queen cells from their foundation day upwards. Some who have not spent more time than myself in examining this matter will tell me I am wrong I doubt not, but negative evidence cannot disprove the positive that I have in my possession. When these cells have reached the stage of sealing—*i.e.*, eight days before hatching into queens, the time of departure is at hand, and is only likely to be naturally delayed by a condition of weather so adverse as to disincline bees for travelling. Should this be prolonged the queen cells will be torn open and the occupants ejected, when swarming is not likely to be again attempted under two or three weeks. It is true that sometimes bees, Italians especially, will come out before commencing queen cells, but this is rather the exception that proves the rule.

Every bee-keeper knows that where natural swarming is practised, piping (the call-note of the young hatching queens) may be heard on the eighth evening after the departure of the swarm, and that casting takes place, if at all, with curious regularity on the ninth day. The rule already given explains the cause of this, and also supplies us with a ready means of getting a correct forecast as to the intentions of our stocks. If those that are getting crowded are run over every four or five days the presence of queen cells will forewarn us, while their absence will set us at rest till the next examination. The plan to be adopted if we desire to prevent swarming can only here be hinted. Cutting out

\* This operation has received its share of attention elsewhere in a reply to a correspondent, which see.

queen cells and supering, or clearing by the extractor a comb of honey from the side, and putting this in the centre of the brood nest, or, if honey is not at the time being yielded, simply shaving off the capping and inserting it centrally, will help us in our object; but we are talking of swarming now and not its prevention. Before explaining our methods, however, let us try to meet a possible objection. If supers are on and being filled, then swarming is most to be dreaded, and then the examination cannot be made; no, but due caution at the time of supering may have made the probabilities of swarming remote. If hatching brood was then made to occupy the centre of the hive while younger brood and eggs stood towards its end the natural process of maturation has constantly been opening new cells to receive the eggs, the queen is waiting to deposit, and the crowding of the brood nest, which is the bees' natural prompter to colonisation, has been prevented.

But we are intent upon making our swarm artificially. Our hive is very strong, and either cells are growing, or we have some ripe ones, or, better still, a queen already laying waiting for insertion. The swarm we will suppose is not for ourselves, but is to go to a distance. It may travel in a skep, inverted over the mouth of which canvas or cheese cloth is tied, or we may use what is commonly called a swarm box—that is, a rough case, a convenient size for which would be a foot long, and 10 inches high



and wide. It is not composed wholly of wood, but has two large openings—one in front at the lower part, and the other in the back at top. The lines given indicate a cross section. At *b* perforated zinc is permanently fixed; at *a* zinc is also nailed after the bees have entered. In addition to the hive to receive the swarm we require a flat board, not less than 30 inches each way, and a dome queen cage or little lidless box of some kind. We open the hive as it stands, and search for the queen. The excitement and slight use of smoke cause the bees to gorge while we inspect the combs. The mother is found, and is carefully picked off by the wings and placed beneath the cage, which is stood over the frames upon a piece of card. The hive is now removed to give place to a stool the height of the hive stand, upon which our large board is now placed, while upon it we plant our swarm box or skep, propping the front if the latter with a stone. We take our first comb from the stock, sharply jerking it downwards over the board in front of the swarm box. The bees fall, the older ones at first taking wing, but the younger commence a quick march in; a second comb is brought and treated as the first. The queen cage follows, and we satisfy ourselves that the carefully liberated tenant is safely housed. We add bees from other combs, and if we are pressed for time scoop up those upon the board towards the entrance of the box, using a large address card for the purpose. If we commenced operations in the evening we may leave our box till dark, and then, placing the perforated zinc over the opening, nail up and have ready for transit at once. It is better when honey is being freely gathered to operate in the morning, because at the close of a day's work the limpid nectar is thrown out by the jerking of the combs and somewhat agglutinates the bees; but in the morning the gathering of the previous day has had the advantage of thickening by evaporation during the night.

The hive should now be returned to its stand to receive all those that had been left on the wing at the removal of the box. A few very young bees always drop upon the ground, and would be lost if we neglect to put a stick thence to the alighting board. Although unable to fly they will crawl up this and enter the stock.

If the swarm to be made is to remain with us, and the hive it is to tenant carries a frame of a different size from that of the old hive, we proceed as before, finding the queen and caging her first. This is important, for if we commence work by removing the hive we may be made nervous in feeling that the queen ought at once to be found, and may have in consequence to repeat with emphasis "The more haste the less speed!" The queen secured the hives change places, and about three combs have their bees jerked from them. The remainder of the swarm will be made by the flying bees. The door of the old stock will be contracted, while it should have a bottle of very thin syrup (1 lb. of sugar to a quart of water) given to it, as this will supply the water needful for the grub-raising, and will enable the bees to remain at home to keep at this work. The swarm should also be fed with syrup (3 or 4 lbs. of sugar to a quart of water), and may now be treated precisely as a natural swarm, and will as such receive further notice hereafter.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

HOW I TAKE ARTIFICIAL SWARMS FROM BAR-FRAME HIVES.  
—I remove the crown boards, take a bar hive the same size, and

place it on the top of the one I want to drive; I then blow some smoke in at the mouth of the hive; then drum it (it takes rather longer drumming than a straw hive). I look in at the windows to see when there is a good swarm. There are four windows in my hives. The hives are 16 inches square and 11 inches deep. I then take it off, place it by the side of the parent hive, same as you would the straw. I then put in the ten bars and close it up. I have adopted this plan for three years, and found it answer well.—J. M., *Lincoln.*

#### BITTER HONEY.

IN some places and seasons bees work on Dandelions and Ragweed (*Senecio Jacobæa*) when more eligible honey flowers are scarce, and the honey gathered from the flowers of these plants is dark in colour and disagreeable in taste. It is to be regretted that bees ever touch Ragweed and Dandelion, for the honey gathered from them is worse than useless, as the bees deposit it in cells beside good clear honey. In this way the bad spoils the good and makes it unsightly and unsaleable. Honey gathered from Dandelions and Ragweed is of a dark green colour, and when seen through the cells of white comb appears to be as brown as porter or treacle. A bee-keeper at Partington, about five miles from Bowdon, came to see me ten days ago, when he said that one of his supered hives had swarmed after half filling its super with honey gathered from Dandelions, honey which he described as "black and bitter." About a week ago while walking about in Dunham Park, I called to see the gardens at the Hall, and found that the gardener had six hives full enough for swarming. One had a glass super on it filled with brood and black honey sealed up. Another full hive exhibited its black honey through a glass lid in its crown. The gardener said he had found, about a week before I called, that his bees had been among the Dandelions. He was asked what he would do with the dark-coloured honey. He said it might do "for feeding bees in winter, or be used like Dandelion coffee for people with diseased livers." Though I have long known that bees work on Dandelions and Ragweed in times of scarcity, I have never had in my apiary the dark-coloured honey.—A. PETTIGREW.

#### REVIEW OF BOOK.

*The Stewarton: The Hive for the Busy Man.* By the Rev. E. BARTRUM, M.A., Berkhamstead. 45 pages. London: Longman, Green, & Co., Paternoster Row.

THIS little manual is an honest attempt to popularise the so-called Stewarton hive and system of management. It includes the paper recently read by the author before the British Bee-keeper's Association with the discussion that followed, and several appendices from the well-known pen of "A RENFREWSHIRE BEE-KEEPER," and is illustrated sufficiently to make plain the text. As may be supposed under the circumstances, it is by no means one-sided, like certain other productions of those who have "an axe to grind." True, the skep system is ignored in the discussion, it being taken for granted that the modern hive must be such as to permit the inspection of the cells and the easy manipulation of the combs. Probably the Association may yet bring forward some champion of the skep system whose paper will be looked for with much interest. In this manual the discussion thus mainly turns upon the comparative merits of the octagonal Stewarton and the ordinary rectangular bar-frame hive. Naturally it divides attention between the hive and its management. The advantages of the octagonal form are discussed on the lines of conformity to Nature, and were it not impossible to have uniform and interchangeable frames in such a hive we should at once concede the position. Besides, the form of the hive and its frames (for it seems to be admitted that it must have moveable frames) renders it difficult to make except by experts. It is against it also that it does not admit of using the modern and, we believe, indispensable sections, without at least altering one portion of the hive to the rectangular form.

Under the head of Management we are of course placed under the tuition of the ablest exponent of the system, "A RENFREWSHIRE BEE-KEEPER." We are told to put two prime swarms into the hive at an interval of some days, to tier up or nadir as occasion may require, manipulate slides, &c. We wonder why this system should be admitted, except of course the sides and pegs, by those who discussed the matter as peculiarly the Stewarton system. Did those hives "with legs" have to do with the admission? Ever since we used bar-frame hives we have been in the habit of tiering up or nadiring just as "RENFREWSHIRE" does. Abolish "those legs" and all things are possible.

Our author candidly admits that "for purposes of manipulation

of interchange of frames, for use of the extractor, for the production of marketable sections, the ordinary bar-frame has the decided advantage." But "RENFREWSHIRE" admits nothing of the kind. Neither does he see any advantage in the power given by the bar-frame hive of spreading the brood urged by Messrs. Cowan and Cheshire, nor has he any fear of that imposing tower of ten storeys (figured in the book), on a 6-inch fireclay pedestal toppling over in a gale. Our author is, however, more unbiassed, candidly admits the advantages and disadvantages on either side, and after all does not advise the general adoption of the Stewarton. He has found it suits those who, like himself, have little time to devote to their bees, and "with a minimum of trouble" gives him a "maximum of honey."

We can honestly recommend the perusal of this manual by beekeepers of every school, for outside the matters of debate contained in it there are many facts fitted to stimulate all, and incidental reference to principles that are at the root of all good management.

**BEES POISONED BY THE DIGITALIS PURPUREA, OR FOXGLOVE.**—Last summer I had a large quantity of Foxglove plants, cultivated varieties, and very beautiful in bloom, at the same time a quantity of Canterbury Bells growing near them, and in flower. I was much struck to find that a great number of the working bees were lying dead in the flowers of the Canterbury Bell. Day after day I watched with much interest the movements of the bees, and found that after they had fed for some time on the flowers of the Foxglove they became stupid, and after leaving the Foxglove they went into the flowers of the Canterbury Bell, and, as a rule, died shortly after. Query—Did they die from the poison got in the Foxglove alone, or did it depend on their coming in contact with the flowers of the Canterbury Bell? I could not find any dead bees on any other plant or on the ground near by.—A. PATERSON, M.D., *Fernfield House, Bridge of Allan* (in *British Bee Journal*).

#### TRADE CATALOGUE RECEIVED.

Henry Hope, 55, Lionel Street, Birmingham.—*Book of Designs of Horticultural Buildings.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Book (F. J. J.).**—We know of no book so likely to meet your requirements as Thomson's "Handy Book of the Flower Garden," which is published by Blackwood & Sons, and the price does not exceed half the amount you name.

**Address (S. C. F.).**—The address you require is, 44, Percival Street, Goswell Road, London.

**Gum Water for Pelargoniums (C. D.).**—Place 8 ozs. of gum in 5½ pints of soft water and allow it to remain about two days to dissolve, then strain it through a piece of muslin, and use it from small tins such as ladies use to oil their sewing machines with. The gumming process can be done very quickly with these, as one drop is quite sufficient for a flower.

**Dressing Vine Border (J. A.).**—You may carry out the practice that has been recommended as soon as the fruit is removed from the Vines.

**Benefit Societies (Young Gardener).**—There are no societies that we are aware of that are established with the object of assisting gardeners to obtain situations; but no doubt the members of gardeners' benefit societies assist each other in this respect. There are societies in Leeds and Sheffield, and no doubt a letter addressed to the secretaries would find its destination.

**Rose Leaves Falling (J. T.).**—The leaves suggest that the plants have received a sudden chill, which has arrested the flow of sap. Have you had frost? We presume the injury was apparent before you commenced syringing, and that the application was not too strong. We suspect that the frost which has been so injurious in many districts during last week is the cause of the present condition of the foliage, and that the only cure is more genial weather.

**Variegated Carnation (H. H.).**—We do not know of any Carnation having variegated foliage. We have occasionally seen a plant with the leaves faintly striped with white, but it was usually in a sickly condition and of no value.

**Asparagus (J. F.).**—Your question is almost unanswerable, as so much depends on the nature of the soil and condition of the plants. We have known the produce to vary from 400 to 1000 lbs. from the extent of ground you mention.

**Gooseberries (Idem).**—The following are free-bearing varieties, and afford green fruit early in the season:—Antagonist, Crown Bob, Highlander, Leader, Queen of Trumps, and Whitesmith.

**Tomatoes not Setting (R. G. M.).**—As you have previously succeeded with the same varieties that have now failed, and cannot ascertain the cause of the failure, we fear that we cannot with such data that has been afforded answer your question satisfactorily. We can only suggest that the pollen was not sufficiently dry for dispersion, and the flowers were consequently not fertilised. You will find much information on Tomato culture in Mr. Iggulden's manual, which can be had post free from this office, price 1s. 1d.

**The Austrian Briar (Curate).**—The blooms you have sent are of this extremely bright Rose. It is very hardy, and may be increased by layers; but when plants are established in good soil they usually produce suckers freely, which when detached with roots soon form good flowering plants.

**Raising Single Pyrethrums (G. D.).**—New varieties are raised from seed, and established varieties by cuttings or division of the roots. Cuttings strike readily in gentle heat in the spring, and the roots may be divided in the autumn, yet soon enough for the plants to become established before the winter, otherwise they are best divided just as growth commences in the spring.

**Double Cucumbers (Stephen Castle).**—We have many twin Cucumbers sent to us every year, but not often a specimen showing such a close and continuous union as in the one before us, which is very solid and fine, the weight being 3½ lbs.

**Carrots Withering (G. Davis).**—Your Carrots are infested with the maggot, and in all probability the crop will be nearly worthless. When the plants are in such a state as those you have enclosed there is no remedy. If you sow seed of the Early Horn at the end of the present month, or early in July, on a piece of ground far distant from the present crop, the plants will probably escape injury, and you will have a supply of clean roots in the autumn.

**Potatoes Frozen (J. B., Yorkshire).**—All you can do is to cut off the tops below the parts frozen, and fresh growths will be produced at once. The tubers will in all probability be smaller as well as later, on account of the check the plants have received.

**Sawdust for Rhododendrons (S. P.).**—When Mr. Cuthbert Johnson made his Rhododendron beds he used fresh sawdust mixed in equal proportions with common garden soil, and to this he added a good dressing of bone superphosphate, but we are unable to state in what proportions.

**Begonias Decaying (C. D.).**—You have done quite right in reducing the moisture in the atmosphere, but the soil must be kept moist, and when the pots are filled with roots copious supplies of water are necessary. If the decay does not cease dust the affected parts with finely powdered charcoal. Although you cannot give more ventilation you may perhaps be able to admit air earlier in the morning, and we advise you to do so if possible.

**Northern Spy Apple (Alek).**—You are quite correct. This excellent Apple originated about the year 1840 in the State of New York, on the farm of Oliver Chapin of Bloomfield, near Rochester. It belongs to the Spitzenburgh race, and bears some resemblance to the Esopus Spitzenburgh. Gradually it became a favourite among American orchardists, and in 1843 we find it one of the sorts which were recommended "for trial" at one of the pomological conventions. In 1847 the fruit was sold in New York at 12½ cents, each. It is now largely imported into this country annually.

**Superphosphate of Lime (J. W. Dixon).**—It is more useful as a manure than bones, because it is more soluble in water. If we bury a bone it will remain almost unaltered for years; but if we break it into small pieces it decays much sooner, and if put round the roots of Cabbages will soon make them grow more fine and vigorously. Cabbages, however, are not the only garden vegetables benefited by bone manure, for phosphate of lime is one of the most constant constituents of all plants. Of this phosphate, therefore, the soil is deprived by every crop it bears, and to restore this phosphate to the soil is an object with every cultivator. It was long since shown by chemists that phosphate of lime is the chief ingredient in all bones, and consequently these by degrees have become one of the most extensively used manures. In every 100 lbs. of sheep's bones there are 70 lbs. of phosphate of lime; in 100 lbs. of horses' bones sixty-eight of that phosphate; and in the same quantity of ox bones 55 lbs. As phosphate of lime is insoluble in water, and even bone dust is slow in decaying, it was suggested that by dissolving it in a strong acid, superphosphate of lime, a substance soluble in water, would be formed, and also all the other constituents of the bone be presented to the roots of the crop in a most available form. This process is said to have been first adopted by Mr. Fleming of Berrochan, N.B., in the year 1841. He employed muriatic acid (spirit of salt) to dissolve the bones, but it was subsequently found that sulphuric acid (oil of vitriol) was both cheaper and better.

**Photographs of Leaves (R. M. S.).**—The following process has been recommended for the purpose you name:—At any druggists get a little bichromate of potash. Put this in a 2-oz. bottle of soft water. When the solution becomes saturated—that is, the water has dissolved as much as it will, pour off some of the clear liquid into a shallow dish; on this float a piece of ordinary writing-paper till it is thoroughly and evenly moistened. Let it become nearly dry, in the dark. It should be of a bright yellow. On this put the leaf; under it a piece of soft black cloth and several sheets of paper. Put these between two pieces of glass (all the pieces should be of the same size), and fasten them all together tightly. Expose to a bright sun, placing the leaf so that the rays will fall upon it as nearly perpendicular as possible. In a few minutes it will begin to turn brown, but it requires from half an hour to several hours to produce a perfect print. When it has become dark enough, take it from the frame and put it in clear water, which must be changed every few minutes, till the yellow part becomes perfectly white. Sometimes the venation of the leaves will be quite distinct. By following these directions it is scarcely possible to fail, and a little practice will make perfect. The photographs, if well taken, are very pretty.

**Name of Fruit (J. S.).**—It is not easy to determine the name from a solitary specimen, and we can only say that the fruit resembles a well-kept example of the Northern Greening.

**Names of Plants (J. H. B.).**—The single Orchid flower sent is not sufficient to determine its name with certainty, but it resembles *Oncidium sphacelatum*.



tum. The Fern is *Pteris (Doryopteris) palmata*. (*J. G.*).—1, *Pavia flava*; 2, *Fraxinus Ornus*; 3, *Staphylea pinnata*; 4, *Viburnum prunifolium*. (*A. B.*).—Your plant is *Matricaria inodora flore-pleuo*, and it may be increased by division as growth commences in early spring.

**Removing a Super from a Skep and Clearing off Bees** (*Amateur*).—You can only determine whether your super is ready to take by an examination. If it be of glass this is a simple matter, as the hidden cells of the centre are always finished and sealed before those on the outside. If the combs have been fixed by being built down on to the hive a thin wire must be passed beneath and drawn backwards and forwards gently as it makes its passage, so as to ent rather than tear the comb attachments. In order to clear off bees no plan is more convenient than a Cheshire pin trap, but if you have no book describing this proceed as follows: Take your super to a shady spot, invert it, and place a cloth over its mouth so that no robber bee can enter. Quickly the bees, finding they are prisoners, will come to the light and parade the cloth, which you will turn over at intervals of a quarter of an hour or so. You at each turning put those on the cloth to the outside, while a number waiting to escape will at the same moment take wing and return to the hive. The last two or three may be dealt with by blowing from the mouth down between the combs.

**Uniting Bees** (*Clifton*).—If the driving is intended as a prelude to the destruction of the original stock because of its age, we should strongly recommend that it be not done, for a hive may stand many years and prosper; and the history of this shows that it is doing well, while it will now have the advantage of a young queen in lieu of the old one which left with the first swarm. If you drive unite immediately, as the bees will then be full of honey, which is a prime condition for securing a good reception. The rules for uniting as given in the text books will have to be observed.

#### COVENT GARDEN MARKET.—JUNE 15.

PRICES have generally received a check, business being quieter and goods with difficulty cleared. Some fair samples of outdoor Strawberries have reached us during the week from the southern and south-western districts, but fruit from the home counties is backward.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Melons.....	each	3 6 to 5 0
Apricots.....	box	1 6 3 0	Nectarines.....	dozen	6 0 10 0
Cherries.....	½ lb.	1 6 2 0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches.....	dozen	14 0 20 0
Figs.....	dozen	6 0 9 6	Pears, kitchen..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	dessert.....	dozen	0 0 0 0
Cobs.....	½ lb.	0 0 0 0	Pine Apples....	½ lb.	1 0 2 0
Gooseberries...	½ sieve	3 6 4 0	Strawberries...	per lb.	1 0 4 0
Grapes.....	½ lb.	3 0 8 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto.....	½ 100	0 0 0 0

##### VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	2	0	5 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1	0	1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1	0	2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0	9	1 6	Parsley..... doz. bunches	6	0 0 0 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	1 6 2 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1	6	2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0	0	3 6	Radishes..... doz. bunches	1	6 2 0 0
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz. bunches		2	0	4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 8	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0	6	0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0	2	0 6	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 477.)

THE one-horse drill which covered in work  $4\frac{1}{2}$  feet was noted last week, but there is a small occupation drill covering a space in work of  $3\frac{1}{2}$  feet only, and we are induced to notice this more especially because it is exactly the width and capacity of a drill which we bought at a factory in Oxford Street, London, in 1845. This was used on our farm for a period of twenty-two years, and was even then in good condition, and had required but very little repair, although it had been in use for drilling every season. Messrs. Reeves & Sons' drill is capable of use for both corn and roots with manure, and all the advantages which can occur in the use of one-horse drills are here present with the lightest possible draught. Being only  $3\frac{1}{2}$  feet wide, it is better

for high lands and hill sides; and when we are speaking of small occupation implements, it is of great consequence to reduce the draught, so that it may come within the power of one horse under all circumstances. This firm also offers a patent corn-sowing apparatus, which in use is attached to any ordinary plough. The advantage of this is, that the seed of corn or pulse is sown at the bottom of the furrow in the act of ploughing, and any quantity of seed can be applied. It is found that in very dry weather, when the Barley or other corn would not vegetate without rain by the usual plan of sowing or drilling on the surface, that when the seed is deposited at the bottom of furrow it is sure to find moisture, and is covered by the loose soil as the next furrow is turned. By this plan we not only insure vegetation but cheat the birds, for they seldom dig after the grain, and as the roots strike into hard firm ground the wireworm or grub seldom do much injury. Again, when the land is heavy, as in the seasons of 1878 and 1879, ploughing and sowing the seed under one operation, it is almost the only safe way of depositing the seed, because if the land is laid accordingly with the plough, it may remain without any harrowing whatever. This applies equally to winter or spring Beans and Peas as to Wheat, for it often happens the weather is too wet for ordinary drilling, and thus the best period of the season is lost. We have seen Beans deposited under a furrow in this way which completely defied the efforts of rooks, and thus the plants are saved.

Machinery of large dimensions and of great importance now requires attention—namely, that supplied by the firm of Clayton and Shuttleworth for the purpose of steam-threshing. Farmers who work a machine for their own use only are advised by the firm to have the single blast threshing machine, so that they may thoroughly mix the sample after threshing on the granary or barn floor, by passing it through a hand-dressing or winnowing machine before sending the sample to market. We cannot, however, recommend this plan of proceeding, for in the case of small occupations it is best to hire the machinery, and with it a staff of competent men not usually to be met with or employed upon small farms; the best and most general purpose machinery for hire in the district can then be selected, and there is no tackle for the combined work of threshing, dressing, and preparing the bulk for market equal to Clayton & Shuttleworth's portable steam-threshing and finishing machinery. It is only on large farms, even where steam is used for tillage and chaff-cutting, that these expensive and large-size machines are kept, and can be used with full advantage; therefore, by hiring the same description of tackle for threshing, the moderate-sized farmers reap the same advantage by hiring as the tenants of the largest occupations obtain by keeping them as part of the working stock of the farm. The machines are made of various sizes, the width of the drum being from 3 feet to 5 feet 6 inches. The sizes of engines required for driving these machines vary also according to the power required. In this matter the size of the machine should be selected in accordance with the work required to be done on the farm besides threshing. In the case of tackle let for hire the engines must or should be adapted to the requirements of the user, and in accordance with the recommendation of the firm who supply the machinery. The firm also fix permanently the patent level indicators to the machine frames, and all running parts are erected in accordance therewith. By this means the machines can even on rough ground be set in a level position for work, thus avoiding undue friction and heating of bearings.

The machines are mounted on wood travelling wheels with improved oil boxes, which greatly add to and facilitate the removal from place to place. The home farmer will see at a glance the importance of easy removal of the machinery, for whether it is on hire or in possession the work will require to be done at the side of the ricks wherever placed, and often at short notice. In

the case of settled fine weather in harvest much corn may be sometimes thrashed in the field without stacking, in which case the straw may be stacked or trussed for sale simultaneously with the thrashing, which is a great saving of time and labour, improving condition of the straw and chaff. Both of these in this country, and particularly in some districts, are valuable according to their condition; but it may be remembered that in America the straw is valued but little, the ears of Wheat being clipped off in the field as the crop is standing and thrashed only for the sake of the grain. In Hungary and other countries the straw in many cases is considered of little use except for fuel to feed the steam engines connected with thrashing out the grain. In the harvest of 1879 we saw farms where the value of the straw was quite equal to that of the grain after being thrashed, even in this country. To return, however, to the construction of the machines, the drums are made of wrought iron, with best tough ash wood beaters armed with the patent rolled steel-ribbed beater plates. The drums are accurately balanced. The drum can be made entirely of iron, but such construction is too rigid. The drum spindles are of steel, very strong, with long bearings, which run on brasses fitted with improved syphon cups. The patent drum protector or safety feed board is fitted to all machines which are made for feeding by hand. This is a necessity imposed by Act of Parliament dated 16th April, 1878. There is now a patent apparatus for self-feeding, which can be attached for use to machines of any size or width. Any of the machines can also be fitted with special drums and apparatus for thrashing Beans, Rape, Mustard, and Turnip seed, as well as the other varieties of corn and seeds. The straw shakers are an important adjunct to this machinery, and are worked by a single crank shaft, the straw being alternately tossed up vertically and moved forward horizontally, which is the best action for separating the grain and chaff from it. If desired, however, double crank shakers are supplied for use in those districts where the straw is required to be sent to market; the shakers are made to deliver it in as straight a condition as possible for trussing off the machine. These machines are also fitted with Barley awner and smutter, consisting of a shaft studded with steel knives, and adjustable beaters, revolving in a cylindrical iron casing. The corn from the awner is passed by an elevator into a second dressing apparatus, consisting of a series of riddles, through which the corn percolates while being acted on by a blast for carrying away the beards, chaff, and smut rubbed off in the awning process. On dropping through the last riddle the corn enters the patent adjustable rotary screen, by which it is sorted into three qualities, the size of the grains of each being determined by the adjustment of the wires of the screen, which is very easily effected. Thus the process of finishing corn, its separation, cleaning, &c., is completed, doing away entirely with the old-fashioned use of the various machines for winnowing, hummelling, screening, &c., so that the separation of Barley from Oats, or any other mixed corn, will be delivered off the machine in a separated and divided sample fit for market. Nor need there be any complaint of the unequal mixture and conditions of corn, because this has always been a matter in the hands of the home farmer; for by his direction any part of a rick or mow of corn may be thrashed separately, so that anything likely to interfere with the regularity of the sample and its condition rests entirely with the farmer himself.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour* may now be employed in preparing and seeding the land for a Turnip crop in the morning, but in the afternoon hay may be stacked in the best possible condition in hot sunny weather. This is an old-fashioned way of proceeding, and we know that let the weather be ever so fine hay is not in good condition until midday. In all cases where a catch crop has been removed the land should not be ploughed unless it can be worked fine and seeded the same day.

*Hand Labour*.—Women will be employed in weeding and cutting

up Thistles and Docks, in fact all kinds of weeds except those which can be pulled up, or the flower buds pulled off by Koldmoor's weeding machine, drawn by one horse, which is the best and only substitute in weeding for hand labour. The men and women too will be required to assist in trimming the Thorn hedges when hindered from more important work, but at all events quickset hedges should be clipped before midsummer, while the young shoots are soft and easily cut up to that time. In trimming banks and borders without quickset plants these should always be cut up whilst green and given to young cattle, breeding sows in the yards, also to milch cows where the milk is sold; and if they get cotton cake at the same time the animals will do well and make better manure than while feeding on roots and cake in the winter months. In those cases where there is a good plant of Hogweed, coarse Grass, Milk Thistles, Parsley, &c., and the first growth cut up in the beginning of May, the second growth will very soon be ready. A man or two should now be employed purposely for cutting green fodder for all the animals of the farm which feed upon it, including the team horses; the horse's labour is then never delayed by the carters being obliged to cut up green fodder for them. Straw should now be drawn and piled up ready for thatching where required, and this work is very conveniently done if showers should hinder other work. We wish also to recommend the practice of teaching some of the farm labourers thatching, in order that the thatching may be done immediately it is required, instead of the bad plan of waiting the time and opportunity for a journeyman thatcher to come and do the work when it suits him and his helpers. We referred last week to matters connected with making and stacking the hay, such as Clover, Saintfoin, &c.; but with regard to park and upland pasture hay it is a different matter altogether, especially if the summer continues dry and the bottom grass very short. In very hot sunshine if the hay is tedded the short undergrowth dries up in a little time, and the horse rake will not touch the short grass, and much is lost altogether, whereas if it is left in swathe the long and short grass dries together in a mass, and can be eared to rick without loss, as it makes very quickly by once turning in swathe and without any tedding. Some men will be employed in hoeing Mangolds, Potatoes, &c.; and where the Mangold seed had been dibbled, or in fact whenever it is very thick in the rows, women should be employed in singling behind hoes, as it can be done with much more regularity by hand than by the hoe. The horse-hoeing should be continued let the weather be ever so dry, as frequent hoeing is found to expedite the growth of the plants. If the Mangold plants make slow growth give the land about 1½ ewt. of nitrate of soda per acre, sown broadcast if the weather should be dry. Cattle Carrots should be freed from weeds immediately they are strong enough to bear the hoe; and in case the Red Intermediate sort forms part of the produce, and there is a probable sale for them in the locality as food for the people, they may be left doubly thick in the lines and pay well for selling. In the event of gaps and loss of plant in the Mangolds, Cabbage, or Kohl Rabi, plants should be planted, but they must be set at the back of the spade, and the land opened deeply to admit strong plants and to reach the moisture of the subsoil; because if the ground is dry, and especially if it is hard, spade-planting is the only successful mode of saving the plants.

*Live Stock*.—Of all the animals of the farm swine are generally much neglected, but like other animals they will pay for care in selecting, and we recommend sorts adapted for producing pork or bacon as the case may be. In fact it is a question of early maturity almost entirely, for those which will make the most growth and yield most weight for age in general give at the same time the best mixed proportions of lean and fat, the importance of which is great either in bacon or pork. The question of size is easily met by early slaughter if pork of light weight is required. The cross-bred animals between the large Yorkshire white and the Berkshire are best adapted for general purposes, these being good breeders as to number and fatten readily. In mating the animals we prefer the Berkshire sow and the white Yorkshire male, but the sow should not be put to the boar until nine or ten months old. Sheep have in many cases been short of grass and green fodder; the weather, however, on the whole having been dry they have not done badly. It is important to notice that the lambs now sent fat to the London market and reared from long-woolled ewes, including Leicesters and Cotswold, do not take so well with the butchers, especially the twin lambs, being hollow and loose in the coat. It is therefore recommended that a horned Dorset or Somerset ram be selected for service in those flocks which are intended to produce lambs for fattening. We have sent horned ewes into the midland counties for the purpose of breeding horned tups for service in the long-woolled flocks, the result of which has been highly approved. In a short time the sale of rams for service in the various down flocks will commence, and for mating with the off-going ewes of the flock we recommend the use of rams of another description from that of the ewes, keeping, however, steadily in view the object of early maturity both as to fattening and weight for age. Thus we would use Oxford down tups with Hampshire down ewes; and Hampshire down tups with Dorset and Somerset cross-bred stock, as well as with horned ewes themselves, at least as regards the off-going part of the flocks.

*FLIES AND HORSES*.—The incessant torment which flies inflict upon horses during such hot weather as we recently endured may not have occurred to the minds of many. Though a minor misery

yet it is so real that I venture to ask you to allow me to describe a plan which I have found thoroughly successful in preventing it altogether, while perfectly harmless. It is simply the application, before harnessing, of a mixture of one part of crude carbolic acid with six or more parts of olive oil. This should be rubbed lightly all over the animal with a rag, and applied more thickly to the interior of the ears and other parts most likely to be attacked. This application may need to be repeated in the course of the day, but while any odour of the acid remains the flies decline to settle, and the horse is completely free from all their annoyance. The nervous irritable state into which some horses get from the attacks of these insects is also not an infrequent cause of accidents, and these, therefore, may also be obviated. Whether the dreaded tsetse of Eastern Africa would also fight shy of similarly anointed animals I cannot say, but it deserves a trial, and if successful would be an incalculable boon. It might also prove obnoxious to mosquitoes.—J. JAMES RIDGE, M.D., *Lond.*—*Enfield* (in the *Daily News*.)

### HAYMAKING.

WITH clear and settled weather a pleasant time is haymaking, for then the work goes on briskly. The grass is mowed, harvested, and carted in four days with the regularity of clockwork, and the stack is a green one, for well-made hay retains most of its colour as well as its sweet odour and nutriment. But when the weather is unsettled and showery it is a critical operation, requiring much watchfulness and caution, or the entire crop may be spoilt. Yet it must be granted that by the exercise of due care, and making the most of every interval of fine weather, much hay might be saved that under looser management is lost. The truth of this assertion was put fully to the test in the wet summer of 1879. I began haying on July 2nd, mowing two acres of grass on that day; but rain set in again before night, and it was a fortnight before the first load of hay was carted. The weather continued very unsettled, gloomy skies and heavy showers predominating so much that the haymaking was not done till the end of August, and yet most of the hay was saved in tolerable condition, being fairly green in colour and possessing a considerable amount of aroma. Very much of it was harvested without sunshine. For example, I find in my diary of that year the following note on July 25th: "Made useful progress with hay, using tedding machine to good purpose. Carried five big waggonloads of hay by working till 7.30. Sky only occasionally visible, and heavy storm clouds all the afternoon, but no rain."

A good barometer is indispensable in haymaking. The success in 1879 was due in no small degree to the fact of each portion of the hay being cut with a rising barometer. That was, and is, a fundamental rule never to be broken with impunity; supplemented by the utmost activity in the subsequent drying and carting during every period of fine weather it goes far to ensure a full supply of good sound fodder for winter. The great difficulty is to thoroughly imbue one's workpeople with the importance of extraordinary exertions in a critical state of weather. I have a lively recollection of my mortification on a certain occasion some four or five years ago, when after a long day among the hay I was called away in the evening, leaving my then bailiff to collect and cart the remaining two loads which we had ready for the rick. He, however, only carted one load, because "the dew was falling fast," and so the other load was left out and quite spoilt by the wet weather which set in that night and continued for a fortnight.

Last year the weather was so dry in April and May, that although Clovers answered well and were a heavy crop, yet the grass crop for hay was both thin and dwarf, which induced not a few farmers to put off the haymaking so long, hoping for showers and a stronger growth, that all the earlier growth was spoilt. Now it is sound practice to mow for hay as soon as the majority of grasses are in flower and before any of them fade, in order to secure the greatest possible amount of nutriment in the hay; for if the grass be suffered to become sere and dried before it is mowed, its nourishing properties have almost all been absorbed by the seeds, which it is well known require them for a full development, becoming full and plump at the expense of the stem and leaves. Acting upon this I was able to make excellent hay, but there was very little of it. Hot showery weather set in soon afterwards, and the aftermath was so abundant that both sheep and cattle improved and fattened unusually fast, and I was able to send several beasts to the butcher off the grass in prime condition before any were put in the yards for winter fattening.

Not only is the aftermath, or second growth of grass, valued for fattening stock, but also for dairy cows. The milk is then at its best, yielding cream so rich that the butter is of a deep yellow and sweetest flavour. It is then that a supply for winter is potted

in crocks, each containing about 30 lbs., and each entirely filled at one operation, and not in layers of different churning, every possible pains being taken to pot it quite fresh, sweet, and free from taint.

Reverting to the haymaking, let me urge upon beginners the importance of harvesting the hay gradually and of carting it before it becomes too dry to eventually develop its full flavour. I have striven to show the importance of briskness and promptitude in haymaking, but unless these desirable qualifications are tempered with prudence and sound judgment they are apt to prove mischievous. A clear knowledge of the right method and degree of dryness is only to be obtained by actual experience, for we must neither expose the hay to a scorching sun till it becomes brittle, nor must we collect it in a flaccid damp condition. There is a mean which we strive to attain, and which causes the hay to undergo a slight fermentation soon after its accumulation on the rick. It is brief in duration and beneficial in action, soon passing off and leaving the hay a dry, sweet, wholesome, aromatic mass of food, such as cattle love and thrive upon.—EDWARD LUCKHURST.

### VARIETIES.

ILLUSTRATED BRITISH BALLADS.—The fifth part of Messrs. Cassell, Petter & Galpin's serial work on the above maintains the high opinion we formed of the first number. The ballads included in the present issue are the Children in the Wood, the Cruel Brother, Cumner Hall, the Demon Lover, John Gilpin, the Doom Well of St. Machon, and the Douglas Tragedy, all suitably illustrated.

— AGRICULTURAL EXPERIMENTS AT WOBURN.—These experiments were instituted last year for the purpose of ascertaining the value of dissolved and undissolved phosphates. The results already obtained show that Wheat cannot be profitably grown on the light soil at Woburn, and probably not on similar sandy soils elsewhere, for a limited number of years, even when the best artificial manures containing both mineral and nitrogenous constituents are applied to the land in much larger proportion than could be done in actual farm practice, on account of the cost of the manures. On strong Wheat land containing a large proportion of good clay, such as that at Rothamsted, Dr. Lawes has grown both Wheat and Barley on the same land continuously for about thirty years.

— HOMING PIGEONS.—Why is it that the Pigeon returns to the spot whence it was taken? It is simply because Nature, in the wonderful variety of her moods, has chosen to give us an example in the Pigeon of an indomitable longing for its home. Compelled to seek its food at a great distance from its nesting-place, this bird of strong flight has had implanted in it also an unerring instinct of direction. Once, therefore, the wild Pigeon used its instinct, and its wondrous endurance on the wing, solely for the purpose of returning as directly and as speedily as possible to its treasures of the nest and pleasures of home. But now in this, as in so many other instances, man has diverted natural gifts to his own ends, and the homing bird serves important purposes in peace and war.

— BEES AND HONEY AT TUNBRIDGE WELLS.—An exhibition of bees, hives, and honey was held in connection with the Bath and West of England Society's Show. This department of the Show was under the management of the British Bee-keepers' Association in conjunction with the West Kent Association. The exhibits of honey, although small in number owing to the early part of the season, were of first-rate quality. Mr. G. Allen of Orpington, Kent, showed twenty-six 2 lbs. sections, and upwards of thirty 1 lb. sections, and gained the first prizes in each class. In the class for 1 lb. sections Mr. Cheshire of Avenue House, Acton, showed a good collection and was awarded second prize. Mr. R. Scott of Blindley Heath, Godstone, showed a good collection of small glass jars of extracted honey. Prizes were offered for observatory and other hives, and collections of bee furniture. The bee tent of the West Kent Association was erected in the ground, and proved a source of much attraction and instruction to the many hundreds of persons who witnessed the several displays of driving, &c., which took place during the several days of the Show. Mr. T. W. Cowan, Mr. J. M. Hooker, and the Rev. G. Raynor acted as Judges; and these gentlemen, together with Mr. Jesse Garratt, the Hon. Secretary of the West Kent Association, and Mr. Huckle, the Assistant Secretary of the British Bee-keepers'



Association, were in constant attendance throughout the Show to give information to the several thousands of inquiring visitors.

— **EXTRAORDINARY TITHES.**—At a recent meeting of the Select Committee appointed by the House of Commons to consider this subject (Mr. Inderwick in the chair), Mr. Bryant of Dunstead Park, Westerham, Kent, said he farmed his own land of about 280 acres, which was laid out in fruit and market gardens. There were 40 acres of Hops and 30 of wood. His property lay in two adjoining parishes. In Westerham he paid an extraordinary tithe of 15s. per acre on Hop land, and nothing on fruit land; in Brasted there was a uniform extraordinary tithe of 14s. per acre on all Hop land and fruit land. The clergyman was the recipient of this extraordinary tithe, and he told witness recently that it was very repugnant to him to receive it. There was an Act passed in the 45th Edward III., in the year 1371, which was the only Act previous to the Tithe Commutation Act of 1836 which dealt with tithes, and that prohibited the levy of these extraordinary tithes. In 1835 and 1836 there was no importation of Hops or fruits of the kind grown in England, and none of vegetables. The home market was entirely fed by the home producer. The importation of Hops since that time had been considerable, and in 1875 it amounted to the value of £1,038,054, and in 1879 to £1,217,938. In 1875 the import of raw fruit of the kind grown in England amounted to £986,248, and it had increased to £1,746,936 in 1879. Onion imports were in 1879, £450,019; Potatoes in 1875, £1,070,976, and in 1879 £2,696,885. The effect of the extraordinary tithe was to strangle this industry in England; the tithe had to be paid whether any profit was made out of the market gardens or not. There was a gentleman at St. Paul's Cray who had 3000 acres in Hops and fruit, and had to pay £900 a year in extraordinary tithes. Witness had introduced upon his farm the undercropping of fruit plantations with market gardens; the land was previously in Turnips and Wheat. On being asked by the Chairman to propose a remedy for this extraordinary tithe, Mr. Bryant replied, "Total extinction, it ought never to have been imposed." We think most people will agree with him.

— **WHEAT PRODUCTION AND TRANSPORTATION.**—The "New York Tribune" states the average cost of producing Wheat in the Far West is estimated at 84 cents per bushel, and a vast quantity of Wheat is raised in this country at a lower cost. The average cost of transportation to Liverpool, exclusive of  $3\frac{1}{2}$  cents for hauling in this country, and  $6\frac{1}{4}$  cents for Liverpool charges, has been put at 50 cents per bushel—viz., 20 cents from the farm to Chicago,  $15\frac{1}{2}$  cents thence to New York, and  $14\frac{1}{2}$  cents from New York to Liverpool. The charges now, though navigation is not yet open, are 15 cents from St. Paul to Chicago, 18 cents from Chicago to New York, and less than 10 cents from New York to Liverpool. Even this low rate will be greatly reduced whenever it becomes necessary in order to secure a market for the surplus grain of the Far West. Indeed, even now grain is being removed from St. Louis and St. Paul to Liverpool at less cost than from the Mississippi River to New York. A single tug has just taken 1900 tons of grain from St. Louis in barges on the way to New Orleans. With an ordinary stage of water the charge is said to be 5 cents a bushel from St. Louis, and 15 cents from St. Paul. Much more than half the grain exported crosses the Mississippi River. The actual cost of transporting by barges is said to be little more than half the rates now charged; so that, if it were necessary, in order to secure a market abroad, more than a hundred million bushels of grain could be moved down the river for less than 5 cents per bushel from St. Louis. Hitherto lack of facilities and of shipping at New Orleans has restricted the movement; but charters have actually been made in this city within the past week for vessels to take grain from New Orleans to Liverpool at 6d., or 12 cents per bushel. If surplus grain is moved even now for not more than 17 cents per bushel from St. Louis to Liverpool, whereas the present cost by rail from St. Louis to New York is about 20 cents, the British farmer has not yet felt the full force of American competition. From St. Paul to Liverpool the present cost is 27 cents, whereas the rate by rail from St. Paul to New York is 33 cents per bushel. The river route, though not enough used now to influence railroad rates materially, as these quotations show, is liable to be very largely used when-

ever the possibility of selling two hundred million bushels of Wheat from the north-west depends upon the cost of transportation thence to Liverpool. Then it will doubtless be found that grain can be moved from Minnesota to Liverpool for less than half the cost of transportation allowed by the British Commission. In short, the British farmer, who acknowledged that he could not hope to compete with American grain costing in England less than 1.43 dol. per bushel, may find that he is obliged to sell his own grain at less than 1.18 dol. per bushel in order to keep the home market for himself. It is not necessary to say that one season of such competition would put a stop to Wheat-growing on a great many farms in England.



### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 454.)

#### FRESH BLOOD.

As will have been manifest from what has been already written, it ought to be several years from the first starting of a strain before it is necessary to introduce fresh blood; but be the years few or many, the time is sure to come when the step can no longer be avoided. This being so, the prudent fancier will do well to anticipate the necessity, and make such a provision for his needs that the fresh cross shall be as little harmful as possible.

The introduction of absolutely new blood into a strain can be postponed in some cases by an expedient which is not always practicable. A colony may be established in some friendly yard as distant as possible from the parent yard, and a sub-strain there formed from which the original strain may be recruited. We say "as distant as possible" advisedly, for climate, soil, elevation, &c., have an undoubted effect upon the constitutions of the birds, and a sub-strain established in a locality which is essentially different in its natural characteristics from the home yard will become in the course of a few years so affected by its surroundings as to be for practical purposes almost a distinct strain. Birds from such a sub-strain may be used with great advantage in the home yard, and their use will be found to produce a considerable increase in the stamina of the parent stock.

It is not everyone, however, who can adopt this plan, and even if adopted it can only postpone the day when absolutely fresh blood has to be introduced. This must be done gradually, and it is for this reason that preparation should be made for the necessity before it actually arises.

Bearing in mind that a cross between totally unrelated birds generally results in the production of progeny which are worthless in fancy points, it is apparent that it would be by no means prudent to introduce a fresh cross at once into the breeding yards. To purchase a cockerel from a foreign strain and mate him up with several of the best hens would, except in a very large yard, be a useless waste of a season's chances of obtaining valuable chickens. It is quite sufficient for the purpose of recruiting the energies of a strain that the birds crossed into it should have in them one-half fresh blood. The fresh blood can therefore most easily be introduced by obtaining a hen or pullet from a strange yard, mating her with one of the best cocks of the home strain, and selecting from amongst the chickens bred from this cross those most suitable for supplying the necessary fresh blood. The birds so selected can, even though themselves defective in points, be relied upon to do little injury to the strain and to produce a good proportion of valuable chickens. If a yard be available for the purpose the purchased hen may be in-bred to, and a supply of comparatively fresh blood be thus obtained for future use.

If for any reason it be thought more desirable that a cockerel should be purchased instead of a hen or pullet, the only disadvantage will be the practical loss of a breeding yard for the season, and it may be well to let the hens or pullets mated with him represent all the original elements of the strain as fully as possible. In this way some unknown relationship may be hit upon and some much better chickens obtained than would otherwise have been the case.

Where space is very limited the easiest way of obtaining fresh blood is by purchase from some friendly fancier, to whom a bird has formerly been sold, of a cockerel descended from the bird so sold, but having a large proportion of other blood in his veins. This plan may indeed be adopted under any circumstances where

it can be clearly ascertained how the birds are bred; but that is a matter as to which breeders do not always care to be explicit, and conscious ignorance is preferable to supposed knowledge.

In choosing a bird to cross into a strain regard should be had to the points, if any, in which the strain is deficient. The bird selected should be of extra merit in such points, and, if it is not intended to in-breed to the new purchase, exaggerated development in the points will be advantageous. A knowledge of the family from which the selected bird is descended is also of importance for reasons already noted, and where practicable that family should be (except as regard defects) as much as possible of the same type as the breeder's own strain. Where the breed kept is one in which it is customary to mate up separate yards for breeding cockerels and pullets, and that plan is not followed by the intending purchaser, extra care is necessary in ascertaining the family history of the new purchase. We have known cases in which most unlooked-for peculiarities have turned up in cockerels hatched from birds which were only intended for pullet-breeding and *vice versa*, and such peculiarities are generally very difficult to breed out. In addition to cases in which the introduction of fresh blood becomes necessary to counteract the ill effects of in-breeding, there are also cases in which in consequence of some original deficiency in the strain fresh blood has to be infused. These cases require special mention, inasmuch as the existence of such a defect generally necessitates the crossing-in of the new blood—intended to counteract it—more than once, and in fact leads rather to the formation of a new strain than to the mere introduction of fresh blood into a strain already formed. In such circumstances the new blood must be of special excellence in the point in which the old strain was defective, and must also be of such general excellence as to be fit to form the foundation of a strain.

The considerations which are applied to the introduction of fresh blood to the poultry yard are generally applicable to the Pigeon loft, with the exception that as Pigeons are monogamous it is immaterial as regards space whether a cock or hen be used to infuse the necessary fresh blood. The choice need, therefore, only be affected by regard to the preponderating influence of the cock or hen in reference to the points in the strain which most require amendment. If the weak points be those in which the male parent has most influence, a cock should be selected of special merit in these points, and *vice versa*. The last-named consideration also deserves attention where fresh blood is introduced into the poultry yard to counteract defects of the strain.

(To be continued.)

### POULTRY NOTES.

THOSE not well acquainted with the so-called "non-sitting" varieties of poultry very frequently are alarmed if a Spanish, Hamburgh, or Polish hen by chance shows a desire to incubate, fearing it an indication that she is not of a well-bred race. It may be well at this time of year to inform them that such cases are by no means uncommon, that they do not prove any impurity of breed, and that as a rule such hens turn out excellent sitters and mothers. If we remember rightly Mrs. Arbuthnot, a very accurate authority on poultry lore, gives her experience in her book that Hamburgs which enjoy a wide range frequently sit. Our observation leads us to agree entirely with her, for our Golden-pencils, which range at large through woods, sit year after year, and rear immense broods, though generally a little late in the season. A single Silver-pencilled hen too of high pedigree, which we possess, has both last year and this year done the same. None are more careful and faithful mothers; they are peculiarly adapted to Bantams and Pheasants.—C.

### TOY PIGEONS.

(ORIENTAL FRILLED PIGEONS.)

THE importations from the East which have brought us Turbiteens have also brought us many other frilled Pigeons of great beauty and delicate colours and markings. Like Turbiteens they are all frilled on the breast, have feathered hocks and legs, and, like Turbiteens, they may either be plain-headed or point-crested. Their general form and points of form, too, are the same as those of Turbiteens, but there is a difference in their markings; in fact there are, so to speak, two distinct families of them. Some, Turbit-like, have white for their ground and a shield of variegated colour on the wing, where Turbits have one whole colour; their tails are coloured too, as those of some English Turbits seem to have been of old; others are parti-coloured all over, and so more like Owls.

The principal sub-varieties of the former class are called Satinettes,

Brunettes, Bluettes, and Silverettes; of the latter class Blondinettes are the only very distinctive type. It must be remembered that there is no generic difference between the different sub-varieties of the Satinette tribe, as there is no generic difference between Red, Yellow, and Black Jacobins or Turbits. The difference is chiefly one of the degree of shades, the production of which must be studied by a fancier who makes any attempt at scientific breeding. The colour of the shoulder or shield of Satinettes is very peculiar; it is a mixture of black, white, and a kind of pink; these shades are intermixed in different ways. The marking of the tail in good specimens is very accurate and distinctive, each feather having a round white spot on a darker ground at the end of it. The Brunette is simply a lighter Satinette, to which it has much the same relation that a Yellow Turbit has to a Red. Bluettes and Silverettes have bars on their wings, and so correspond with Blue and Silver Turbits. The colour of their shoulders and tails is blue and silver respectively, and their bars are double—i.e., two distinct lines of white and brown, like those of Blue "Shields" in their younger stage, though we believe in the case of Silverettes brown should be absent from the wing, and the bars should be black and white. Blondinettes, which, as we have said, are coloured all over, are very varied in the degree of their shades. Their general colour is a mixture of blue and the pink of Satinettes. The head, neck, and body show the blue most clearly, while the pink marking is most distinctly seen on the shoulders. Their flight feathers are generally laced with black, and the tail marking is very distinct.

It is in vain to search any of the old works on Pigeons for information on these varieties. They were not known to our ancestors. All the more interesting is it for young fanciers to master for themselves their peculiarities, and the effects of various unions of the different sub-varieties. We are too apt in these days to trust entirely to books and to the labours of others. A little observation would in this case be well worth the while of any intelligent lover of Pigeons. That the Eastern fanciers must have spent much time in producing birds so unlike in colour to the original wild Pigeon, and which accurately reproduce markings so peculiar as those of the tails of these birds, is without doubt. Our observation of them may be much helped by a visit to the autumn show at Birmingham. Special classes are now made there for oriental frilled Pigeons, and it is a real treat to see the beautiful collections which Mr. Ludlow and other of their admirers there exhibit. We do not profess ourselves to have had any large experience in them, but those which we have tried have proved very hardy when kept in a natural way and chiefly at liberty. We believe that other sub-varieties may still be imported; indeed, we have seen several, but do not venture to assert that they have been bred long enough to one distinctive type to reproduce their like. We once much admired at Birmingham a "Blue Vizor." His body was white, his wings blue with white bars, and his tail blue with white markings; but his distinctive feature was a blue head, as if a coloured veil had been drawn over it. Such rarities, however, can only be acquired by fanciers who can afford to pay for them.—C.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1881.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In	
June.											
Sun. 5	29.606	59.2	55.8	S.W	64.0	64.2	54.4	81.5	51.6	0.575	
Mon. 6	29.447	48.5	48.2	N.	60.0	62.7	46.8	120.7	48.4	0.392	
Tues. 7	29.589	50.8	47.7	N.	58.4	55.6	43.9	94.5	42.7	0.028	
Wed. 8	29.883	53.0	47.4	N.E.	56.2	63.0	41.0	118.7	36.6	—	
Thurs. 9	30.185	50.9	45.1	N.W.	55.0	58.0	37.4	113.6	34.5	—	
Friday 10	30.196	55.4	46.4	N.W.	55.1	63.5	39.6	120.8	35.5	0.010	
Satur. 11	30.912	57.0	50.2	N.E.	56.3	64.4	47.6	101.3	46.7	—	
Means.	29.845	53.5	48.7		58.0	61.6	44.4	107.3	42.3	1.005	

### REMARKS.

5th.—Dull and overcast; rain commenced 0.30 P.M., continued steadily rest of the day.  
6th.—Wet morning; afternoon fine, with some sunshine and thunder at intervals; thunderstorm in N.W. 6.40 to 7 P.M.; wet evening.  
7th.—Cooler, with slight showers during the day; hail at 11 A.M.; fine evening.  
8th.—Cool, fine generally; slight showers in forenoon.  
9th.—Cold; fair on the whole; windy.  
10th.—Calm, fair, cloudy, and cool.  
11th.—Fine morning; hazy and thick in afternoon; fair evening.

A most remarkable fall of temperature followed the heat of the week ending with June 4th. The fall has affected all the elements of temperature, but most markedly the average maximum temperature in shade, which in last week was 78° 5', and this week only 61° 6', a fall of 16° 9'—a rare if not unprecedented fall.—G. J. SYMONS.



23rd	TH	Sale of Plants at Womersley House, Crouch Hill, by Mr. J. C. [Stevens].
24th	F	
25th	S	2ND SUNDAY AFTER TRINITY. (11 A.M. Rose and Pelargonium Shows, and Evening Fête.
26th	SUN	
27th	M	Royal Horticultural Society—Fruit and Floral Committees at Leeds Show, Farningham (Roses), Croydon and Lee Shows.
28th	TU	
29th	W	

### THE ROYAL HORTICULTURAL SOCIETY.

IN another page we publish the full text of the judgment of Mr. Justice Fry in the action of the Royal Commissioners of the Exhibition of 1851, as landlords of the gardens in the occupation of the above Society, on the alleged grounds of non-payment of rent. The differences that have existed between the Commissioners and the Society have probably never been made so clear to the horticultural public as they are now.

The question at issue has, perhaps not generally, yet to a very great extent, been regarded as a simple difference between landlord and tenant, as if the case were one of ordinary private property and where the tenant's right of occupation rested solely on his actual payment of rent. Judged, as the Society has undoubtedly been judged on this basis, the result has been that to a not inconsiderable extent it has suffered from an alienation of public sympathy and has been deprived of the support which it would otherwise have had.

Whatever may be said against the rights of property, the sense of justice is so deeply engraven on the public mind of this country, that a man or body of men refusing to fulfil engagements that have been entered into is not likely to enjoy public confidence. If by imprudence, or, indeed, from almost any cause, rent is not forthcoming when it is due, the defaulter pays the penalty imposed by the circumstances, and the landlord exercises his undoubted right to recover possession of his property. Although the tenant under certain conditions may receive a measure of sympathy, it is not usually of a substantial character, and when once the word "rent failure" attaches to a man, company, or society, public support is immediately estranged. That a feeling of this kind, more or less appreciable, has been entertained in respect of the Royal Horticultural Society is certain; but it is one of the most hopeful signs of the future, notwithstanding the peculiar position of the Society—with past dissensions still exerting a baleful influence, with difficulties impeding its progress, with the then pending litigation engendering a feeling of uncertainty as regards the future—that such steady and in some instances such generous support should have been accorded it during the past few years. This support could not have been conferred had not the true position of the Society been understood, and had not the Council carried out the objects for which it was established in a loyal, legitimate, and honourable manner.

A careful perusal of the very able and singularly lucid digest of the whole case by the Judge, will show most conclusively that the relative positions of the Commissioners

and the Society are essentially different from those that ordinarily exist between landlord and tenant. The payment of what is called rent is not the first and paramount duty of the Society. Other stipulated conditions have to be fulfilled, and not till these have been complied with can payment of a sum be demanded by the Commissioners, and before the demand can be tenable it is incumbent that the precise sum that is due be ascertained. That this was not done was certainly not the fault of the Society, for the Commissioners were formally invited by the Council to summon the Expenses Committee, but the request was not complied with. In this they erred, so far as regards sustaining their position and demand, and the Society legally maintains its ground; and in another important respect it maintains it morally also, and this as regards their defence of the interests of the debenture holders.

It may be said that the recent action was decided on a technical point—the non-fulfilment of a certain stipulation that did not affect the real merits of that part of the case in which the interests of the debenture holders were involved. This is, to say the least, taking a very advanced view of the case. The real position of the question is this—One given and essential point was abundantly sufficient in the estimation of the Judge for determining the question at issue, and it was unnecessary to enter elaborately into any subsidiary issues, however important these might be. Yet, sufficient was said incidentally on the injustice to which the debenture holders would have been subjected if they had been deprived of their security in the summary manner proposed. Instead of their position being weakened, it has been greatly and justly strengthened and fortified, and in substance as well as in form the case was won by the Society.

Here the litigation ends, and it would have been better if it had not been begun. The Commissioners, however, felt it their duty to put the law in operation, and the Society, considering their relations with the debenture holders, had no choice but to defend the action. Under the circumstances, even if the case had terminated differently, it is not conceivable that the horticultural public would have disapproved of the action that was determined upon by the Council.

But to the future. Cannot any differences that may arise between the Commissioners and the Society be settled by mutual arrangement, and in an amicable manner, consistently with justice being done to all parties, so as to improve the property of the one without injuring the interests of the other? This is what we consider could be done and should be done; and we further think it might be done if united action were taken, and an earnest endeavour made to settle such differences in a satisfactory and equitable manner.

The position of the Society stands thus: It was established to promote and support an important industry—the improvement and promotion of scientific and practical horticulture. To this end such resources that may be placed at the command of the Council will be applied. The extent of the work to be done depends wholly on the support that is received. For some time past uncertainty has prevailed, an uncertainty that could not be otherwise than enervating. Yet notwithstanding there has been a steady accession of new Fellows; and now that firmer ground will be felt, and safety is secured for some time to come, it may be reasonably expected that a larger measure of support will be accorded.



It remains now for all who are interested in the Society to rally round the Council and assist in restoring the former income, so as to enable it to fulfil all its engagements, and not the least of these its advancement of horticulture.

### CHOICE VEGETABLES.

**BROCCOLI.**—The severity of last winter made sad havoc with the crops; many, especially of the early varieties, being totally killed. Penzance suffered most, and evidently is not suitable for cold northerly localities. Veitch's Spring White and Cooling's Matchless were much injured, and we had not any really good heads until Leamington was ready on the 6th of May. Not any of Leamington, Lauder's Goshen, nor Model were killed, and they headed excellently; Goshen continuing to June 10th, and Model to June 17th. Model is good in every respect, the plant being very dwarf and sturdy, having little stem for the frost to affect, and the foliage thoroughly protects the heads, rendering them quite white, added to which they are very compact. On a north border this variety affords valuable heads until Cauliflowers are ready. It is the model of what a Broccoli should be, and is a decided acquisition.

**CAULIFLOWERS.**—These have had a hard time of it, there being few crops in gardens that are not tried by cold 3° below zero. In an ordinary season plants winter fairly well with the protection of a wall, and in frames and under handlights, but many plants succumbed in the two latter. The hardiest were Walcheren, next Early London, and the others much alike. What Model is in Broccoli, Veitch's Early Forcing promises to be in Cauliflowers. It has short stems, comparatively small leaves, and the heads are not too large, but just suitable for table. It comes in fully ten days in advance of Erfurt Mammoth and a fortnight before Early London, and will become as great a favourite for early work as Autumn Giant is for late use.

**LETTUCE.**—Not any of the outdoor plants survived the winter, but those with no more protection than the lights survived in frames. Paris Market came in first, closely followed by All the Year Round, both of which are closely hearting sorts, and Stanstead Park gave its larger but not so close heads in an immediate succession. In Cos varieties, after trying many I find none to equal for standing the winter in frames the Bath or Brown Sugarloaf, which forms fine heads and lasts long enough to meet the first sowings of Early Paris Market outdoors, which comes in ten days in advance of any other.

**CABBAGES.**—Ellam's Dwarf Early Spring is another model, the plant dwarf and compact, and has stood the winter well, while many others had their ranks much thinned. It heads quickly, has few outside leaves, therefore little waste, and is not only earlier than any, but is of excellent quality. Hill's Incomparable stood the winter well; Wheeler's Imperial, Nonpareil Improved, and Cocoa Nut much cut and destroyed by the cold. I think the latter one of the best flavoured, quite equal to Little Pixie.

**TURNIPS.**—What a season for fly! Many have had several successional sowings of Turnips, and the plants are eaten. If attacked in time with quicklime applied early in the morning and the practice is continued it saves the Turnips. I had a strong fight with the insects, but conquered; and, what is more, Turnips like lime and wood ashes. Early Purple-top Munich came into use ten days in advance of Early Snowball, which last is the best flavoured of any, being very sweet and tender. Six-weeks is also excellent, and for general crop Veitch's Red Globe is fine both in shape and flavour.—G. ABBEY.

### COLUMBINES.

YOUR woodcut and description of *Aquilegia Stuartii* suggest a few notes on this beautiful class of plants. A statement was lately made in the editorial notes of a gardening journal that no hybrid Columbine could be worth growing. The remark showed more botanical zeal for the purity of species than horticultural appreciation of beautiful flowers, for many of the finest Columbines to be seen in gardens are undoubtedly hybrids: but it is a most important quality in a hybrid that it should be capable of reproducing itself true from seed, and many hybrid Columbines are deficient in this. About twenty years ago I bought a packet of Columbine seed under the name of *Aquilegia fragrans*. None of the produce was at all like the true fragrans, which I have never been able to get, but one of them corresponded to your description of *A. Stuartii*, and flowered well in my garden at Eton for three or four years, when, because I could not obtain it true from seed, I attempted to divide it, and lost it. I have not seen the same hybrid again till this spring, when about the end of May I recognised my old friend amongst some cut flowers in a house in

London. I asked the owner to take me to his garden, situated amongst the Surrey hills, a few miles south of Dorking, where a splendid plant of it was growing, bearing tall branching stems and large pendulous flowers, expanding fully 3½ inches, the sepals being rich blue, somewhat darker than the blue of *A. glandulosa*, and the corolla white with a tinge of blue in the throat. There were also some seedlings, sown when the seed ripened last year, which were already flowering, and were true in all their characters. The plant had been bought of Mr. Ivery, nurseryman of Dorking, as *A. Witmanniana*. I considered it as a hybrid between *A. glandulosa* and *A. vulgaris*, but from what is said of *A. Stuartii* I now think it probably may have been from seed of the small-flowered Columbine generally sold as *A. Witmanniana* crossed with *A. glandulosa*; but probably Mr. Ivery can tell us its history. A similar flower, but of a lighter blue, was sent to me lately in a box of Columbine flowers by Mr. William Thompson of Ipswich. He considered it a cross between *A. glandulosa* and *A. vulgaris*.

With regard to *A. glandulosa*, which you call a shy flowerer; it certainly is so generally in England, but as we get northwards the character and habit of the plant improves, until they reach their climax in the nurseries of Mr. Grigor of Forres, where it produces abundance of flowers and has a branching habit. In most parts of Scotland it flowers much better than in England. I had a fine plant full of flowers sent to me this spring from a private garden in Midlothian.

I am told that to hybridise Columbines successfully it is necessary to isolate the parent plants under glass, and to exclude bees and flies. In my garden, which is full of Columbines of different species, I seldom find a flower which I can be sure is a natural hybrid, and my attempts to hybridise selected flowers in the open air have not hitherto been successful; but I have not yet found any difficulty in keeping species true. The strange varieties of *A. vulgaris*, both in form and colour, are endless, and one can never foretell what the seed will bring; but *A. cærulea*, *A. flavescens*, *A. glandulosa*, *A. chrysantha*, and *A. Skinneri* from seed show all their true characters. The last-named, indeed, has no excuse for hybridising, as it seldom flowers with me till July, when all other Columbines are over.—C. WOLLEY DOD.

### YORK FLORAL FÊTE.

JUNE 15TH, 16TH, AND 17TH.

ANNUALLY for twenty-three years the old city of York has produced exhibitions of plants, flowers, and fruit that have been excelled by few in England; and again in the present year a most satisfactory Show has been held, constituting, in the opinion of many old visitors and exhibitors, one of the finest since the commencement of the Society. Not only were most of the important classes well filled, but the health and floriferousness of the plants contributed a general neatness and brightness to the display that was very pleasing. As usual there was a central circular marquee from which radiated four long tents, one being devoted to Pelargoniums, another to Roses, a third to fruits and cut flowers, and the fourth to stove and greenhouse plants, while an additional tent was occupied with the groups. In the central marquee were the large specimen plants and exotic Ferns, the former being an especial attraction owing to their fine condition. They formed an imposing group, and were greatly admired both by horticulturists and general visitors. Pelargoniums as usual constituted a very important feature, and were, considering the season, excellent both in vigour and in the size, form, and colour of the flowers. Roses were represented by numerous collections, but there was a somewhat too noticeable roughness in the plants, though the foliage and growth were strong and clean. The other sections of the Exhibition were similar to previous occasions; and though, perhaps, in some classes the competition has been more keen at other times, still, taking the Show as a whole, there was very little cause for dissatisfaction upon that score. Indeed there were very few shortcomings in the display, which was alike creditable to the exhibitors and the managers, well maintaining the fame of York as regards horticultural productions.

**PELARGONIUMS.**—From year to year there is little variation in the extent and beauty of the display of this popular and handsome plant; and though the specimens become familiar to us, yet they are always worthy of the admiration they irresistibly awaken. Nearly all sections of the genus are represented; but the Show, Zonal, Tricolor, and Bronze varieties are the chief features, the Fancy varieties being usually represented by comparatively few collections. The competition in most of the above, with the exception of the latter class, was close, and in consequence the Judges experience much difficulty in making the awards in some instances, and rarely have there been so many equal prizes adjudged as on this occasion—a sufficient indication of the comparative quality of the exhibits.

**Show Varieties.**—Three classes were devoted to these. For twelve specimens Messrs. Lazenby & Son, York, secured the principal prize for vigorous well grown and trained examples, not too formal, and yet neat and symmetrical. The varieties have been enumerated in several previous reports; but it may be remarked that Claribel,

Countess, Duchess of Edinburgh, and Prince Leopold were unusually fine, the flowers large and abundant, the trusses of good size and compact. Mr. C. Rylance, Aughton, the only other exhibitor in the class, was placed second with a meritorious collection including Queen Bess and Triomphe de St. Mande in excellent condition. In the amateurs' class for six specimens Mr. Eastwood, gardener to F. W. Tetley, Esq., Leeds, was first with plants of moderate size bearing large flowers, Mr. Gowthorpe, gardener to Miss Steward, taking the second position; and equal thirds were awarded to Mr. J. R. McIntosh, gardener to J. T. Hingston, Esq.; H. Wright, gardener to G. Talbot, Esq.; and Mr. H. May. Three Show varieties were contributed by Messrs. Gowthorpe, Simpson, and Eastwood.

**Fancy Varieties.**—Though these were not numerous they were of fair quality, but they have, perhaps, been shown in better form. Mr. Rylance was first with six specimens even and well flowered, the varieties Sarah Turner and Roi des Fantaisies being especially noteworthy. Mr. Eastwood was second with smaller examples but neat. Three plants were shown by Messrs. Eastwood and McIntosh, who were awarded the first and second prizes.

**Zonal Varieties.**—Two classes were appropriated to this section. For twelve Mr. McIntosh carried off chief honours with well-flowered but rather formally trained specimens. Marvellous, R. C. Clifton, Crimson King, and White Vesuvius were the best. Mr. R. Simpson secured the second position for healthy examples, Clipper being particularly fine. Mr. Eastwood was third with rather rough but bright plants, Mr. Hockney being fourth, and an extra prize was adjudged to Messrs. C. Lazenby & Son. Collections of six were staged by Messrs. T. Simpson, Wright, McIntosh, Hockney, and McIndoe, gardener to J. W. Pease, Esq., Hutton Hall, Guisborough, who secured the prizes for fair specimens mostly flowering freely. Double-flowered varieties were not shown in first-rate condition, but a few good specimens were contributed by Mrs. E. Jackson; Mr. C. Clarke, gardener to Miss Wharton; Mr. Eastwood; and Mr. R. Simpson, who were the principal prizetakers.

**Bronze Varieties.**—Very fine specimens were staged in the classes devoted to these plants, the dark zones being well developed, the foliage vigorous, and the plants of good size. Mrs. E. Jackson was first with six evenly trained, strong, well-coloured specimens, Marshal MacMahon, Vicar of Wakefield, Waltham Bronze, Black Douglas, and W. E. Gumbleton being the chief of the varieties. Mr. Clarke followed closely, Earl Rosslyn being finely represented in his collection. Mr. R. Simpson was third, his best plant being Earl of Beaconsfield, a distinct and striking variety, having an extremely dark zone. Mr. Hockney was placed fourth.

**Tricolor Varieties.**—These also were shown in satisfactory condition, the foliage being very highly coloured. Mrs. E. Jackson had the premier collection, comprising Mrs. Clutton, Lady Catherine, Empress Eugénie, and Flambeau, all good. Messrs. McIntosh, R. Simpson, and Simpson & Sons secured the remaining prizes in that class for similar plants. The best three were from A. J. Cholmondeley, Esq., who had Prince of Wales, William Sandy, and Sophia Dumasque in fine condition; Mrs. Jackson, the Rev. G. E. Gardner, and Mr. H. Banks taking the other prizes for neat and well-grown plants.

**STOVE AND GREENHOUSE PLANTS.**—The most valuable prizes offered by the Society were those for a group of ten stove and greenhouse plants, open to all exhibitors, in which £20, £14, and £8 were offered as first, second, and third prizes. Three competitors appeared, and their contributions as arranged in the central tent not only produced a beautiful display, but they also excited very much interest on the part of the horticultural exhibitors, as two of the collections were extremely close in merit. The much-coveted first prize was secured by Mr. Letts, gardener to the Earl of Zetland, Upleatham, who staged handsome specimens that would not have been easily surpassed. The foliage plants were uncommonly fine, both large and healthy; *Encephalartos*, *Dasylium acrotrichum*, *Cycas circinalis*, *Gleichenia rupestris glaucescens*, *Croton Weismanni*, and *Croton Johannis* being very attractive. The last-named was in superb condition; it was 5 or 6 feet high, and one of the most brightly coloured specimens we have seen. The flowering plants were *Allamanda Hendersoni*, 5 feet in diameter, of globular form, and bearing abundant large flowers; *Ixora coccinea*, with fine trusses of flowers; *Stephanotis floribunda*, very neat; *Erica insignis*, even and well-flowered; *Dracophyllum gracile*, *Clerodendron Balfourianum*, and *Anthurium Schertzerianum*. Mr. Tudgey, gardener to J. F. G. Williams, Esq., Worcester, was placed second, but his plants so nearly balanced those of the preceding collection that many considered they were entitled to equal awards. They were all in excellent condition; *Pritchardia grandis*, *Erica Cavendishiana*, *E. ventricosa*, *coccinea*, and *magnifica*, *Latania borbonica*, *Croton Johannis*, and *Anthurium Schertzerianum* being the best, and have been previously mentioned in the reports of the Royal Horticultural and Botanic Society's Shows. Mrs. Cole & Son were awarded an equal second prize for fine plants, but there was much greater difference between the quality of the last two than between the first and second. *Croton Weismanni*, *Cycas revoluta*, *Latania borbonica*, and *Dracophyllum gracile* were the chief specimens. In the smaller classes healthy plants were contributed, but they do not need special description. Mr. Letts; Mr. Noble, gardener to T. Fry, Esq., Darlington; Mr. Berry, gardener to W. Dove, Esq., York; Mr. Wright; and Mr. Rolleston, gardener to W. Bateman, Esq., Harrogate, were the chief exhibitors.

**Roses.**—A pretty display of Roses in pots was contained in a large marquee, the flowers being fairly abundant, and the distinctive colours well developed; the blooms, too, were of fair quality in the chief collections. For six varieties Messrs. Pybus & Son were first with neat examples of *Boule de Neige*, *Madame Lacharme*, and *Madame Guillot* among others; Messrs. Jackson & Co. and H. May taking the other prizes for healthy but slightly rougher examples. The same exhibitors held similar positions with nine specimens, good varieties being staged in each collection. In the class for fifteen specimens Messrs. Jackson & Co. were placed first, followed by Messrs. H. May and Pybus & Son, all contributing fairly satisfactory plants.

**Orchids.**—York does not usually produce a large exhibition of Orchids, though fair specimens are generally included in the leading collections. Dr. Ainsworth, Manchester, was adjudged the chief honours for six specimens including *Saccolabium premorsum* with six spikes, *Phalænopsis grandiflora*, *Vanda suavis*, *Odontoglossum vexillarium*, *Aerides Schrederi*, mostly what are termed "made-up plants," but all in vigorous health. Mr. Dodgson followed with smaller but neat plants; Mr. Hayward, gardener to Captain Hincks, being third for similar plants. In the other classes there was nothing very remarkable, the above-named exhibitors securing the chief prizes.

**Fine-Foliage Plants.**—Some handsome specimens were staged in the two classes for "ornamental, fine-foliage, or variegated plants." Mr. Tudgey was deservedly placed first with eight, which included *Cycas revoluta*, *Croton Andreanus*, *Pritchardia pacifica*, *Croton Queen Victoria*, and *Cocos Weddelliana*, which have been previously seen at Regent's Park and elsewhere this season, and therefore need no comment. T. Fry, Esq., Darlington, was a good second, having *Croton Veitchii*, *Cycas revoluta*, *C. circinalis*, and *Anthurium crystallinum*, large and healthy. Mr. McIntyre, gardener to Mrs. Pease, Darlington, took the third position with vigorous plants. The best four specimens were contributed by Mr. Winterbourne, Mr. Berry following, and single specimens were staged by Messrs. Talbot, Tudgey, and Tetley.

**Exotic Ferns.**—For eight specimens of exotic Ferns Mr. Tudgey obtained chief honours with fine examples of *Gleichenia dichotoma*, *G. Mendelli*, *Cibotium regale*, and *Microllepia hirta cristata* among others. Mrs. Cole & Sons followed with a less even collection, but including neat plants of *Davallia Mooreana* and *Cyathea dealbata*. In the class for four Mr. Berry had good examples of *Gleichenia rupestris*, *Adiantum cultratum*, and *Davallia Mooreana*, being placed first, followed by Mr. Nash, gardener to Captain Starkey. R. B. Dodgson, Esq., Blackburn, had the best single specimen, a *Cyathea dealbata* over 6 feet high and very fresh. Mr. T. Simpson followed with *Dicksonia antarctica*, also healthy.

**Hardy Ferns.**—For six hardy Ferns Mr. J. Buckle, York, obtained the first prize with very vigorous *Lastreas*, *Athyriums*, *Scolopendriums*, and *Polystichums*, several good varieties being represented. Mr. Rodwell was second with a similar collection, in which *Asplenium marinum* was remarkable for its size and freshness. Mr. Buckle was also first with a single specimen hardy Fern—*Athyrium cristatum*, very fine; Captain Hinch was second, and Mr. Dodgson third. Only two collections of thirty-six British Ferns were exhibited—namely, by Messrs. Rodwell and Buckle, who were first and second respectively with fine selections of varieties, the plants being in excellent condition. *Selaginellas* were contributed by Messrs. J. Buckle and Berry in fair condition, but rather unsatisfactory as regards nomenclature.

**GROUPS.**—A large tent was devoted to these, and several tasteful arrangements were contributed in the class for a group to occupy a space not exceeding 200 square feet. Mr. Letts was easily first with a light and elegant group, having a central specimen of *Cordyline australis*, a groundwork of *Begonias*, *Coleuses*, *Spiræas*, *Pelargoniums*, and other flowering plants, among which were placed taller slender Palms, *Dracænas*, and Ferns that imparted a very graceful appearance to the group; moreover, it was not too crowded—a fault that marks too many such arrangements. Mr. Berry was second with a much more formal, and consequently less pleasing group, though it contained good healthy plants. Mr. R. Simpson, Selby, and Mr. McIntyre were third and fourth respectively with groups similar in character to the second. In the class for a group arranged for effect in a space of 100 square feet several extremely formal arrangements were contributed, the plants arranged on stages in pyramidal form. Gowthorpe and Mr. Fry were the chief prizetakers, but four or five similar groups were staged, their chief recommendation being their brightness.

**Cut Flowers.**—Several classes were devoted to these, and in the competition was keen, and the flowers staged of good quality. Roses were especially abundant, and though there was a want of substance in several stands, still they were generally satisfactory for the season. Messrs. Jackson & Co., H. May, and Eastwood were the chief prizetakers in the large classes, while in some of the smaller classes Mrs. Grimston, E. R. Whitwell, Esq., and Mr. G. Kirken secured the most important awards. Miscellaneous stove and greenhouse flowers were well shown by Mr. McIndoe, Mr. Cartwright, and R. Ducheson, Esq.; hardy flowers being superbly represented by Messrs. R. Smith & Son, Worcester, who were the only exhibitors in the class, and secured the chief prize. Bouquets, buttonholes, and ornamental vases were staged



by Messrs. Rylance, Wright, and Ducheson, who were awarded the most important prizes in all the classes.

**FRUIT.**—Visitors to York Floral Fête generally expect a good display of fruit; in fact, it is usually the first large Show of the year where fairly representative collections are staged. This is partly due to the time at which the Show is held, being neither too early nor too late for the indoor productions; and as the period selected suits the district, competitors are usually numerous and their exhibits satisfactory. Last week was no exception to the rule, all the principal classes being well filled, and the fruit staged fairly ripened, and in some cases of first-rate quality. The chief class was that for ten distinct varieties of fruits, to include not more than two sorts of Grapes, two of Pines, two of Melons, and two Peaches. Three good collections were contributed, the premier award being secured by Mr. Coleman, gardener to Earl Somers, who had two fine bunches of Black Hamburgh Grapes well ripened and bearing abundant bloom, the same number of bunches of Foster's Seedling of fair size but rather green, a pair of even Pines of moderate size, the varieties being Charlotte Rothschild and Queen; Golden Gem and Eastnor Castle Melons were fine, the former particularly well netted and ripened. Violette Hâtive Nectarines and A Bec Peaches, Sir Joseph Paxton Strawberries and Brown Turkey Figs, completed this collection, which merited the honour accorded for it. The second position was obtained by Mr. McIndoe, gardener to J. W. Pease, Esq., Hutton Hall, Guisborough, who staged very neat and praiseworthy examples of well-selected varieties of fruits, some of the most noticeable being Muscat of Alexandria Grapes, Barrington Peaches, May Duke Cherries, and Best of All Melons. Mr. Mann, The Gardens, St. Vincents, Grantham, was a good third; his fruits, Sir Garnet Wolseley Melon, being very fine and remarkably well netted. For six varieties Mr. Wallis, gardener to Sir H. M. Thompson, Bart., Kirby Hall, York, carried off the chief prize for ripe and handsome Black Hamburgh and Buckland Sweetwater Grapes, and good Peaches amongst others. Mr. W. Coleman followed closely, his Black Grapes also being fine, and Mr. McIndoe was placed third with fruits but few points behind the foregoing; indeed all the collections in this class were close in merit. An extra prize was adjudged to A. Wilson, Esq., for well-ripened Grapes, Peaches, and Strawberries. Collections of four varieties was shown by Mr. R. Westcott, gardener to the Duke of Cleveland, Raby Castle, and Mr. McIndoe, who secured the first and second prizes in that order.

**Grapes.**—These were generally of satisfactory quality. The best black Grapes were from Mr. Coleman, consisting of the variety Black Hamburgh, large in bunch and berry, and superbly finished. Mr. J. Allsopp, gardener to Lord Hotham, was second with the same variety but smaller bunches; Mr. Jones, gardener to R. Warrell, Esq., being third with large bunches, but deficient in bloom. The competitors were numerous in this class, seven entering the lists. Five dishes of white Grapes were contributed. Mr. G. Cartwright was first with Buckland Sweetwater, finely ripened bunches of moderate size; Mr. Allsopp second with fairly good Foster's Seedling; and Mr. T. Beckett, gardener to Alderman Terry, third with the same variety not quite so ripe. The first prize for a bunch of new Grapes was awarded to Mr. McIndoe for a fine example of Duke of Buccleuch.

**Peaches and Nectarines.**—Mr. McIndoe secured the chief award for a single dish of Peaches with even, well ripened, highly coloured, but moderate-sized fruits of Barrington; Mr. Hutton, gardener to Thomlinson Walker, Esq., York, and Mr. Wallis following closely with good fruits. Mr. Coleman staged the best Nectarines, Violette Hâtive, of excellent quality; and Mr. McIntyre was second with rather small but finely ripened Welbeck Seedling. In the preceding class there were five entries, but in the last-named only two.

**Melons.**—Ten green-fleshed Melons were in competition, the best being an example of Colston Basset, of good size and well netted, from Mr. Coleman; Mr. T. Osman, gardener to R. B. Dodgson, Esq., following with a similarly good William Tillery; and Mr. Clayton, gardener to J. Fielden, Esq., was third with Eastnor Castle in good condition. Six scarlet-fleshed Melons were staged, all of creditable quality. Messrs. Cartwright, Mann, and Allsopp being awarded the prizes in the order named.

Figs and Cherries were shown in fair condition by Messrs. Coleman, McIndoe, Wallis, and Mann, but Strawberries were rather poorly represented.

Vegetables were not very abundant, and as a rule there is no provision for them; but this year Messrs. Backhouse & Son offered three prizes, value £3 and £2, and a third value £1 was given by the Society for ten distinct stands, and six collections were staged of very good quality; Peas, Beans, Potatoes, Mushrooms, and Tomatoes being especially fine. Mr. Kirk, Mr. Cartwright, and Mr. J. Hammond, gardener to A. J. Cholmley, Esq., were the prizetakers. Twelve braces of Cucumbers were exhibited, all of moderate size, even and bearing good bloom. Messrs. J. Williams, C. Rylance, and Mann were awarded the prizes.

Among the exhibits not for competition were some handsome collections from Messrs. Richard Smith & Son of Worcester, including Spanish and German Irises, Pæonies, Pyrethrums, and Clematises, representing many beautiful varieties. An extra prize was awarded for these, and a first-class certificate for Clematis Princess Beatrice, a fine variety with very large flowers of excellent form, and a delicate pale mauve or lavender colour. Mr. W. H. Hilton, Liverpool, was also accorded a prize for a collection of ornamental flowerpot covers,

Several other groups and miscellaneous contributions were staged, but none of the metropolitan firms were represented—a rather unusual circumstance.

### HARDY BROCCOLIS FOR SUCCESSION.

As last winter was what may be termed a test season for Broccoli, I submit my experience on the subject. I found that Model has proved itself almost the only Broccoli that stood the winter, owing in a great measure to its short sturdy growth; its value is also enhanced by its lateness, figuratively speaking shaking hands with the early handlight Cauliflowers. Cattell's Eclipse is a good late variety. Two years ago I cut heads firm and compact on the 28th of June, but I do not find it so hardy as Model. Suttons' Queen was next in hardiness to Model, but other varieties were nearly all killed. By growing about seven varieties (and I should advise the following:—Veitch's Autumn Protecting, Knight's Protecting, Leamington, Wileove, Suttons' Queen, Cattell's Eclipse, and last but not least, Model)—everything, I think, is attained in the way of Broccoli that can be desired.—J. GADD.

### SOUTH ESSEX FLORICULTURAL SOCIETY.

JUNE 15TH.

A QUARTER of a century has now elapsed since the establishment of this Society, and it still continues to make vigorous progress, annually producing an exhibition which is highly appreciated in the surrounding district, the attendance of visitors being in consequence very satisfactory whenever the weather is in any degree favourable. The ready support thus afforded keeps the Society in good condition financially, and it is pleasing to note that the report for the past year announces a balance of £35. The recent Show fully maintained the credit of the Society, even though there was a slight deficiency in some departments; the general quality of plants and flowers was such as is surpassed at very few local exhibitions, and the arrangement as usual gave much satisfaction. The beautiful grounds of the President, J. G. Barclay, Esq., were in excellent condition, and the privilege of promenading in them, so generously extended to all visitors, appeared to be thoroughly enjoyed. This is undoubtedly one of the great attractions, and judging by the numerous visitors who passed the gates in the afternoon the Show of last week must have been as successful as any previously held.

Two large marquees were devoted to the exhibits, one containing the plants and the other the cut flowers, floral decorations, fruit, and vegetables. In the former the most noticeable features consisted of the stove and greenhouse plants, Orchids, fine-foliage plants, and Ferns, in the classes devoted to which many handsome specimens were staged. Among the first-named the chief collections were in the class for eight specimens, three fine groups being contributed. Mr. D. Donald, gardener to J. G. Barclay, Esq., was placed first with well-grown plants of *Aphelaxis purpurea*, *Genetyllis fuchsoides*, *Dracophyllum gracile*, and a remarkably handsome *Statice profusa*, 5 feet in diameter, flowering profusely, the blooms being of a rich purplish blue tint. Several other smaller plants were also included, constituting a very satisfactory collection. Mr. Bones, gardener to D. McIntosh, Esq., Havering, was a close second with healthy and even specimens; Mr. J. Douglas, gardener to J. Whitbourn, Esq., Loxford Hall, Ilford, securing the remaining award with plants almost equal to the preceding in merit.

Orchids were well shown, and though the majority of the plants were small they were in excellent health, and several choice species and varieties were represented. The principal class was for eight specimens, and in that Mr. Douglas easily secured the first prize with an interesting collection, including a fine *Odontoglossum hastilabium*, with three panicles of flowers; *Dendrobium thyrsiflorum*, bearing five large spikes; *Odontoglossum crispum*, a good variety with two spikes; *Calanthe veratrifolia*; *Masdevallia Harryana*, also in good condition; and several others. The same exhibitor was also first with a single specimen Orchid, exhibiting a beautiful example of *Lælia purpurata* with four spikes bearing fourteen flowers, the lip of an unusually rich purple tint, and indicating a superb variety. Another plant from Loxford Hall also deserves notice—namely, a specimen of *Vanda teres* in flower. This plant is not often seen at exhibitions, indeed many growers experience considerable difficulty in inducing it to flower. On the specimen in question the blooms were large and richly coloured, and the Judges very highly commended the plant. The second collection of eight was from Mr. B. Ship, gardener to J. R. Scott, Esq., Walthamstow, and included, several noteworthy plants, *Brassia verrucosa* and *Cypripedium Stonei* being particularly fine. The second prize for a single specimen was accorded to Mr. T. Foster for a good example of *Dendrobium Devonianum*; and other exhibitors in the class for four plants were Mr. Monk, gardener to W. Fowler, Esq., Leytonstone, and Mr. Merrett, gardener to R. B. Ashby, Esq., Walthamstow.

Fine-foliage plants produced a good display, the majority being healthy clean specimens. The best six in 15-inch pots were staged by Mr. Donald, and included *Cocos Weddelliana*, *Croton Weismanni*, and *Theophrasta imperialis* in fine condition. Mr. Douglas followed closely. These two exhibitors held similar relative positions



with single specimens, the first being a handsome *Croton undulatus*, remarkably well coloured, and the second a good *Cycas revoluta*. Mr. Bones was accorded the premier position for four plants, a well-grown *Croton variegatus* being especially notable. Palms were contributed by Mr. Donald, Mr. Douglas, and Mr. Peters, gardener to W. Pearce, Esq., Wanstead, who secured the prizes in that order for vigorous plants. Ferns were also represented by satisfactory collections, the principal exhibitors being Mr. Jones, gardener to Sir Thomas White, Chigwell, and Messrs. Donald, Douglas, Bones, and Merrett.

Among the smaller classes *Coleuses* were effective, three good collections being contributed by Mr. Monk; Mr. Fisher, gardener to J. Harrold, Esq., Wanstead; and Mr. Peters, who obtained the prizes for generally compact and well-grown plants, especially those in the premier group, in which the varieties Mr. Simpson, Firefly, and Royalty were well represented. *Caladiums* from Mr. Douglas and Mr. Windebank, gardener to Captain Davis, Wanstead, were also attractive; while the *Calecolarias* from Messrs. Bones and Foster

were very bright, compact, and well flowered; Messrs. Monk, Merrett, and Fisher staging smaller examples. Some neat and dwarf *Hydrangeas* were exhibited by Mr. Biggs, gardener to G. Borwiek, Esq., who also contributed the best *Gloxinias*. A collection of unusually dwarf *Cockseombs* from Mr. Windebank attracted much attention, as the heads were also large and well coloured. *Pelargoniums* showed the effects of the season, and were by no means up to their usual condition. Several other collections were also staged by the exhibitors already named, but the only one in the plant tent that calls for special notice was a fine group of new and choice plants from Mr. B. S. Williams of Upper Holloway, which was greatly admired by the visitors.

Cut flowers were shown in large numbers and in excellent condition, some of the general collections being the finest we have seen this year. Messrs. Douglas, Foster, Monk, and Merrett were the chief prizetakers for stove, greenhouse, and hardy flowers; while for *Roses* Mr. Day, gardener to E. Tewson, Esq., Walthamstow, Mr. Mallett, and Mr. Learing, gardener to J. Pelly, Esq., Chigwell,

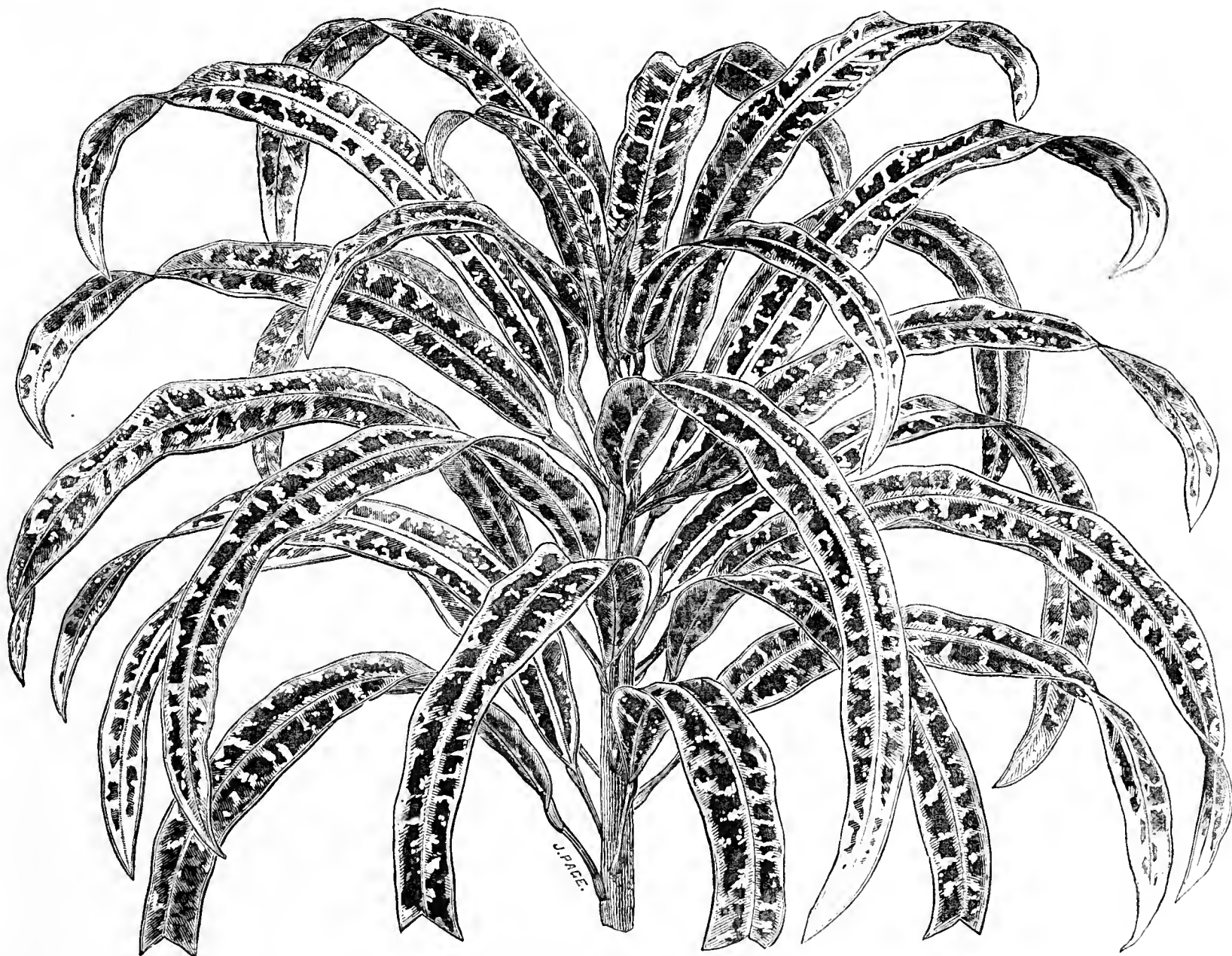


Fig. 112.—CROTON LADY ZETLAND.

secured the principal awards. For vases Mr., Mrs., and Miss Abbott were the most successful exhibitors, having some very tasteful arrangements. Fruit was not abundant, but Mr. Donald had some well-finished bunches of Black Hamburg Grapes; Cherries, Strawberries, and Apples being exhibited by Messrs. Douglas, Donald, Learing, Windebank, and Day. Several good collections of vegetables were staged by Messrs. Donald, Fisher, and Bones.

The above is a brief outline of the chief features of the Exhibition and a record of the principal prizetakers, the great demand upon our space not permitting a more lengthened reference to details. A word of credit is, however, due to the Secretary, Mr. C. E. Cox, for the admirable arrangements both in the disposition of the plants and the notification of the awards.

#### CROTON LADY ZETLAND

CROTONS are now very numerous, yet new and elegant forms are being sent out yearly, usually possessing some distinctive

characters that attract attention and ensure their acceptance by the horticultural world. Mr. B. S. Williams of Upper Holloway, has already sent out many beautiful varieties, several of which have deservedly acquired a standard position in gardens, and the one represented in fig. 112 is one of the novelties for the present year from the firm above named. As will be seen by the engraving, the variety is one of the narrow-leaved forms which, though less noble or imposing than those with broad leaves, are much more elegant, and in a young state are admirably suited for table decoration. *Croton Lady Zetland* is something in the way of *C. Macfarlanei*, but is greatly superior to that variety, the colour being brighter and earlier developed—two recommendations of much importance. The leaves are an inch or a little more in breadth, and 8 to 12 inches long, gracefully arching. The midrib is bright crimson varying to orange, the blade of the leaf being irregularly marked with dark green and bright yellow. A plant was exhibited by Mr. B. S. Williams at

Regent's Park in April of the present year, when a certificate was awarded for it; and though the specimen was only of moderate size, the richness of the colours indicated the value of the plant in a young state. The introducers have favoured us with the accompanying woodcut, which will convey a very fair idea of the variety.

### THE POTATO CROP.

I GREW altogether, in different parts of the country, thirteen acres of Potatoes last year, and intended to send a detailed report to the Journal, but was too unwell to do so. It will perhaps suffice to say that the experiment was very successful as far as regards growing good crops, with but very little disease; but Potatoes have been so plentiful that the price has ruled low.

Good samples of Magnum Bonum have been sold lately at 1s. a peck retail, and the smaller tubers at 8d., while large quantities of Early Rose have been sold during the season at 8d. a peck. I do not think we have had much occasion to trouble the foreigner this year for Potatoes; certainly not anything like to the extent of former years, and, as I say in my book, I do not think we need do so now we have the Magnum Bonum and Scotch Champion to depend upon. These Potatoes will save us millions of money. It is to be hoped we shall soon have some more of the same character. I have one seedling, a second early, which is promising. The price of the Magnum Bonum this year has certainly been rather too low to be pleasant for the grower, but I think we should endeavour to meet the lowness of price by following less expensive modes of cultivation than are generally adopted. I am rather inclined to modify my remarks with regard to the distance between the rows. Three feet may be all very well in rich soil or where it has been highly manured, but where Potatoes are grown in fields of ordinary farm land, which is not generally very rich, I should prefer 2 feet 6 inches or 2 feet 8 inches for the Magnum Bonum.

The crops here are looking very well at present, and promise a good yield, having escaped the frost of the early part of this month.—THE AUTHOR OF THE BOOK ON POTATO DISEASE.

### THE COMMISSIONERS FOR THE EXHIBITION OF 1851 v. THE ROYAL HORTICULTURAL SOCIETY AND PERCIVAL DE CASTRO, A DEBENTURE HOLDER.

THE following is the full text of the judgment of Mr. Justice Fry, as delivered in the Chancery Division of the High Court of Justice on the 15th inst.

MR. JUSTICE FRY:—This is an action brought by the Commissioners of the Exhibition of 1851 against the Horticultural Society and the representative of certain debentures issued by the Society, in which the plaintiffs seek to gain possession of the Horticultural Gardens at Kensington.

The agreement of the 24th of July is that which constitutes the principal bond between the respective parties to this action. It is quite true that there are subsequent agreements, by one of which an increase was made in the sum payable for rent or in the name of rent, and by some of the subsequent agreements certain conditions were imposed on the right of re-entry. I refer to them now only to observe that Mr. North, on behalf of the plaintiffs, has contended that those subsequent agreements create no difficulty in the way of the relief which he asks, and the learned counsel for the defendants have not insisted that they do create such a difficulty; and, therefore, my whole attention in the subsequent part of my judgment will be directed to the agreement of the 24th of July, 1860.

The circumstances under which that agreement was entered into were shortly these:—The Commissioners were constituted for the purpose of promoting certain objects connected with art and science. They were the owners of considerable property in the neighbourhood of the intended gardens, and they were the owners of the site of the gardens itself. The Horticultural Society had received contributions to the extent of £10,000 to be laid out upon the gardens, and the substance of the agreement between the parties was this, That the Commissioners should make over to the Horticultural Society the land in question for a term of thirty-one years; that the Commissioners should expend on improvements in land and levelling, and the erection of arcades, a sum of £50,000; and that the Horticultural Society should expend on the land £10,000 which they had already received by way of contributions, and a further sum of £40,000, which they intended to raise by way of debentures; and that the receipts arising from the gardens should be applied in a certain specified manner between the parties to the contract. Now that manner was shortly this: It was provided that out of the receipts from the gardens there should be retained by the Society "such a sum as shall from time to time be allowed by the Committee hereinafter mentioned" in respect, first, of the expenses of the Chiswick gardens, secondly the expenses of the Society generally, and thirdly the current expenses of the Kensington gardens. Then the instru-

ment declared that the allowance should from time to time proceed, and be made upon a fair and reasonable basis, and so as to keep and maintain the gardens and all the buildings, improvements, and ornaments upon and belonging thereto in thoroughly good order and condition. Then, secondly, the agreement provided that "there shall be then retained by the Society out of such receipts" the interest at the rate of five per cent. upon the debentures—£40,000—or such other sum as should be subsisting. Then, thirdly, it provided "there shall then be paid by the Society to the said Commissioners as rent the yearly sum of £2145, if the receipts shall be adequate for such payment after retaining to the Society the sums authorised to be retained by them under the first and second heads of the present clause; but otherwise such a sum only as shall be equal from year to year as the residue of the receipts over and above the sums so in precedence." Then the instrument provided that "if there shall remain any surplus over and above the said several payments herein-before directed to be made or retained out of the 'receipts from the gardens,' there shall be paid to the Commissioners for their own use and as additional rent yearly a sum equal to half such surplus." A moiety of the surplus, therefore, was retained by the Horticultural Society, and it was provided that they should devote and apply towards the liquidation of the £40,000 debenture debt three-fifths of the money actually received by them from time to time in respect of the receipts from the gardens after payment of the three sums directed to be paid under Clause 14 of the agreement.

Then comes in Clause 18 the provision with regard to re-entry, upon which the plaintiffs are now insisting. "In case it shall happen after the expiration of the first five years of the lease that the sum or sums payable thereunder to the Commissioners as rent shall fail in every one of any five consecutive years subsequent to the first five years to be equal to the sum of £2145 per annum, then and in any such case it shall be lawful for the Commissioners to re-enter upon the said demised premises, and to resume full and absolute possession thereof with all improvements therein and all erections thereon, and with all the plants, shrubs, and trees in and about the same, and out of whatever fund the same may have been paid for, and that without making any compensation whatever to the Society." Then there was a proviso that the right of re-entry should not arise if the Commissioners from the commencement of the term had received upon the average £2145.

The plaintiffs allege that in the five years beginning from the 1st June, 1873, and ending on the 31st May, 1878, the sum payable to them as a rent had failed to reach the sum of £2145. That sum was increased to £2400; but that is immaterial for the present purpose, and they have shown to my satisfaction that nothing in fact has been paid in those five years in respect of rent.

That being the nature of the claim of the plaintiffs, the defendants have resorted to a great variety of arguments to resist the plaintiffs' claim. There are many of those which I think I need only refer to by saying that they do not weigh in my mind at all. It has been said that there has been a defect of pleading, because the statement of claim has not stated the exact date at which the alleged forfeiture arose; and certain old cases were referred to with regard to pleadings in ejectment before pleadings in ejectment were abolished, as they were by the Common Law Procedure Act years and years ago. Those cases appear to me to be immaterial. The pleading in this case if not adequate was sufficient at any rate when it came on for hearing, because the defendants if they were embarrassed might have applied to have the pleadings amended.

Then it has been said that a demand for rent was necessary, and no demand was made. But it is apparent, from what I have read, that the right of re-entry in question is not a right of re-entry for non-payment of rent, but because a certain sum arising from a particular fund does not equal a given named sum. It is a default of equation, not re-entry for non-payment of rent; and the idea that the rent that did not exist should be demanded appears to me somewhat difficult to understand.

It has been further argued, on behalf of the debenture holders, that a partnership has been constituted between the Commissioners and the Horticultural Society, and that for some reason or other, which I am afraid I fail to apprehend, that partnership would prevent one of the partners from enforcing his right of re-entry if it existed. In my view, if one partner lends to a partner whose rights are defined by an instrument, and lends to that partner on the faith of that instrument, the instrument must have effect given to it, although a partnership may be constituted by it. A lender who lends on the faith of a term determinable under the instrument of partnership cannot say that that term is not determinable.

There remains, however, in my judgment a very important question for consideration, and that arises from the facts with regard to the Committee. I have already pointed out that the instrument of 1860 proposes the appointment of a Committee. That Committee was to be appointed for the purpose of regulating the amount to be retained by the Society. In each year it was to consist of three members appointed by the Commissioners and three by the Horticultural Society, and was to be presided over by one of the members appointed by the Commissioners. I have pointed out that the instrument of 1860 contemplated the raising of debentures upon the faith of it, and the debentures were raised on the faith of that instrument, and the sums that were provided for the payment of interest and the payment of principal by that instrument were by the



debentures pledged to the debenture holders. They therefore acquired a most material interest in the sums which were to arise from the gardens, and they acquired, therefore, a material interest in seeing that the term created in those gardens and demised to the Horticultural Society is not put an end to except in accordance with the terms of the instrument on the faith of which they advanced their money; and considering that the instrument was framed between the parties with a view to raising the money, I think the debenture holders are entitled to say that they stand in a position somewhat different to that of persons who claim merely under one of the two contracting parties.

Now, the Committee did not meet in the year 1873. There was a *bonâ-fide* difference of opinion between the Society and the Commissioners with regard to the propriety or impropriety of the appointment of the three members named by the Horticultural Society. The Committee did not meet in 1874, and for the same reason. In 1875 that difficulty was removed, but the Committee did not meet then, although it was undoubtedly, as it appears to me, in the power of the Commissioners to have required the Committee to meet then. In 1876, 1877, and 1878 the same thing happened, and the Committee in fact never met from some time prior to 1873 down to the present hour. In point of terms it appears to me to be plain that the allowance by the Committee is necessary for the ascertainment of the expenses, and in point of substance I think the meeting of the Committee was a matter of great importance. The evidence before me tends to show (I do not say it conclusively shows) that in some of the years if the Committee had met and exercised the vigilance with regard to expenses which they had exercised in previous years the portion of the money payable by way of rent might have been paid to the Commissioners; and if the interference of the Committee was essential or important to the settling of the expenses, it, of course, affected all the subsequent sums, because until the expenses had been paid the debenture holders could not be paid, and until the expenses and debenture holders had been paid the sums payable by the Society by way of rent could neither be paid nor ascertained, and therefore the question whether the sum or sums payable under the agreement to the Commissioners for rent did fail in the five years appears to me to turn on whether the prior charge by way of expenses had or had not been ascertained, because until the ascertainment of the prior charge you cannot tell whether the subsequent sum exists or no. I think, therefore, that in point of substance as well as in point of form the sum payable has never been ascertained, and it is impossible therefore to say that that sum has failed.

Then, no doubt, it has been argued with great force that the Horticultural Society have estopped themselves from setting up this contention because the accounts of the Society have been produced before me, and although those five years are not measured from the same dates, yet during the whole period covered by the five years to which I have referred the whole expenses of the Society were, together with the debenture interest in certain years, sufficient to consume the whole receipts from the gardens, and left nothing whatever payable by way of rent to the Commissioners. I have a difficulty in saying that those accounts worked the estoppel contended for. In the first place they may prevent the Society from saying that the expenditure was not perfectly *bonâ-fide* on their part; but it does not follow that their judgment of what was right to be expended and the judgment of the Committee as to what was right to be expended would necessarily agree. They are two bodies who might have differed honestly one from the other, and I am unable to come to the conclusion that there is any estoppel in those accounts on the Society which would prevent them from saying that the Committee might have allowed smaller sums.

Then in the next place there is this difficulty, that for such an estoppel to be fair, and to be that which can be relied upon, it must be mutual. The Commissioners must be prevented from saying that the accounts can be opened, as well the Horticultural Society must be prevented from saying that they did not fairly expend all the money. I am at a loss to see how the Commissioners are prevented from saying that a portion of that money was improperly expended in the expenses of the gardens. If the consent of the Committee was a condition precedent to the outlay by the Horticultural Society, then, as that consent was not given, not a farthing of those sums can be allowed to the Society; if it was not a condition precedent, then the accounts are open between the parties, and the Commissioners might still be heard to say that a portion of the sums so expended on the Horticultural Society's expenses was improperly expended by them. Again, I am at a loss to find any precedent for holding that a term can be extinguished by estoppel. According to my view a forfeiture, if it is to take effect, must take effect according to the very terms of the instrument, and I have great difficulty in saying that the allegation by the Horticultural Society that they fairly expended those sums in the absence of the Committee to guide them, precludes them from saying that the sum payable by them to the Commissioners by way of rent has never been in fact ascertained in the manner expressed.

It has also been argued that by the effect of the instrument of 1876 the Horticultural Society have again estopped themselves from setting up this contention. I do not so read the recitals in the instrument. They refer to the past receipts during certain years as having been insufficient for the payment of all the sums charged by the fourteenth clause of the agreement of 1860. They recite in anti-

cipation that in the year 1876 the Commissioners may become entitled to exercise the right of re-entry for non-payment of rent. Under what circumstances that anticipation arose I do not distinctly know, but it does not appear to me to be a conclusive admission between the parties that the deed is to operate in any other manner than that which, according to its terms, I hold it ought to operate in.

But even supposing there was an estoppel as against the Horticultural Society, which would prevent their saying that the rent payable had been ascertained, and that no such sum existed because no payment was made, it remains to be inquired whether the debenture holders are in any manner bound by the estoppel. I have already indicated my opinion that the contract of 1860 was made for the purpose of enabling the Horticultural Society to raise money upon it, and I think the debenture holders are entitled to every security and every safeguard which that instrument intended to provide for them. One of those safeguards was the appointment of this Committee. In the appointment of that Committee the debenture holders and the Commissioners had similar interests. They were both interested in cutting down the expenses to a reasonable extent, because each of them had a charge upon the proceeds of the gardens subsequent to the expenses. They must be taken, therefore, to have advanced their money upon the faith of there being a Committee appointed in the manner indicated by the deed, which should act from time to time in their interest, which should ascertain the expenses, and, therefore, ascertain the sum payable by way of rent ascertainable as between the parties; and they must be taken further, in my view, to have contracted that the term of thirty-one years shall be put an end to only in the event of the sums payable by way of rent being ascertained and being found for five consecutive years not to equal £2145.

In my judgment, as I have already indicated, the sum payable by way of rent has never been ascertained, because the prior expenses have never been ascertained. The debenture holders, therefore, I think, are in a position to say, "You have contracted between yourselves for the creation of a term determinable on a certain event only; you have induced me to lend money on the faith of that term, or upon the faith of raising a charge upon the money arising from the term; you have, therefore, given me an interest in the continuance of the term. It has been stipulated that that term shall only be extinguished in the event of a certain sum failing to meet another, which event has never happened, because you have, by disagreement between yourselves, never provided the machinery for ascertaining the amount of the prior sum."

I hold, therefore, that the forfeiture upon which the plaintiffs rely has not arisen; consequently that their claim made in the present action is not sustainable, and I dismiss the action with costs.

#### CRICKETS IN CUCUMBER HOUSES.

To "A CORNISH SUBSCRIBER," who is troubled with crickets in his houses, I would say that he cannot do better than try phosphor paste in the following way—Cut some thin slices of bread and butter, and upon this spread a moderately thick layer of the paste. Cut the bread into pieces of about an inch square, and lay them about in the haunts of the crickets. If they do not partake the first night or two they do so eventually, and in a few days many of them will be found dead, and if the practice be continued they will be all destroyed.

I have been much troubled with them this spring eating the young roots of Orchids, and getting among and eating the tips of the roots of Pines, besides making great destruction in the Peach house, as well as eating ravenously the Cucumbers and Melons, also nearly all cuttings and seedlings in the propagating house have been eaten by them. I at first tried various insect-destroying powders, but none answered so effectually as phosphor paste. After one night in these heated structures the paste becomes dry and the bread hard, so that it must be renewed and a fresh supply provided. I purchase the paste in small penny bottles, because when a bottle is once opened the paste loses strength. It will destroy anything that will eat it, and should be laid down the last thing at night and removed early in the morning.

I have also been much troubled with mice in one of the newly made Vine borders, and they have been destroyed by the same means. A house was planted last year with seventeen Vines, and the mice ate through the stems of eleven of them during last winter. Has any one known of such a case as this before?—THOMAS RECORD.

I NOTICE in last week's Journal that a correspondent from Cornwall is troubled with a plague of crickets. A few years ago, when living in Manchester, we were infested with crickets and cockroaches. We procured a box of Hardeman's beetle powder, which drove both these pests away in a very short time.—JAMES PERCIVAL.

BEDDING PELARGONIUMS.—"C. P. P." deserves honour for continuing to cultivate Pelargoniums through all the years the



runners to and fro after new things have been neglecting them. I believe in a few years we shall see more Pelargoniums grown than ever. I have tried many of the newer varieties, but have returned to the old kinds. Vesuvius is at present the only really fine scarlet bedding variety with me, but even it would be improved with a greener leaf. The large-trussing sorts always become dirty-looking here. I imagine it would repay anyone with the means to breed a strain of bedders after Vesuvius. Were not A. F. Barron and The Shah raised by Mr. George of Putney Heath? I do not think the leaves of Sophia Dumaresque will do more than form roots. In raising stock of new varieties quickly I have occasionally struck leaves with eyes attached, and have found where the eye was absent at the base of the petiole that, although roots were formed, no growth was in any one instance ever made.—R. P. B.

### ROSE SHOW FIXTURES.

THERE has been but little alteration in the fixtures of our numerous Rose shows, and everything promises well for a successful season. It will be a matter of satisfaction that the lessees of the Alexandra Palace, yielding to the remonstrance of the Committee of the National Rose Society, have restricted its exhibition to one day—a gracious act on their part, which will, I hope, lead to their having a very excellent show, and to the hearty support of those members of the Society who are exhibitors.

June 28th .. .. .	Royal Horticultural Society.
June 29th .. .. .	Farningham.
June 30th .. .. .	Canterbury.
July 2nd .. .. .	National Rose Society, Crystal Palace.
July 4th .. .. .	Maidstone.
July 5th .. .. .	Reigate.
July 5th .. .. .	East Anglian, Ipswich.
July 6th .. .. .	Cardiff.
July 6th .. .. .	Norfolk and Norwich.
July 6th .. .. .	Hereford.
July 7th .. .. .	Horsham.
July 7th .. .. .	Shrewsbury.
July 8th .. .. .	Oxford.
July 9th .. .. .	Alexandra Palace.
July 9th .. .. .	Brighton Aquarium.
July 9th .. .. .	Brookham.
July 12th .. .. .	Ludlow.
July 14th .. .. .	National Rose Society, Sheffield.
July 16th .. .. .	Wirral.
July 19th .. .. .	Leek.
July 21st .. .. .	Helensburgh.
July 22nd .. .. .	Newton Stewart.
July 22nd .. .. .	Sutton Coldfield.

I am not quite sure as to Oxford or Newton Stewart, but think the list is correct.—D., Deal.



WE may remind our readers that on Tuesday and Wednesday next, the 28th and 29th inst., the ROSE SHOW OF THE ROYAL HORTICULTURAL SOCIETY will be held in conjunction with the PELARGONIUM SOCIETY'S SHOW, the Evening Fête also taking place on Tuesday. A number of special prizes will be offered, in addition to the liberal provision in the schedule, by the General Horticultural Company for groups of plants, Messrs. Laing & Co. for Begonias, Messrs. Webb & Co. and Rivers & Son for fruit, Messrs. Sutton & Sons, Carter & Co., and Webb & Sons for vegetables.

— THE finances of the NATIONAL POTATO EXHIBITION appear to be in a satisfactory state, the balance in hand being more than twice the amount of that recorded in the audit account of the preceding year, and now exceeds £50.

— MR. ANTHONY WATERER'S RHODODENDRONS in the Royal Botanic Gardens, Regent's Park, are now in fine condition, and the display is, perhaps, the best that has been seen in the gardens. The shrubs are pleasingly arranged, the various colours being so associated as to show the varieties to the best advantage. Some of the specimens are extremely fine, and all densely flowered. Nearly all the best varieties in cultivation are represented, and the exhibition is in all respects highly satisfactory.

— MANY of our readers will be glad to learn that the ALEXANDRA PALACE ROSE SHOW on July 9th will continue for one day only, not extending over two days as was originally proposed. The fixtures of some other of the Shows on Muswell Hill have been changed. The Rose Fair and Gooseberry Show will be held on July 16th, and the Lily Show and table decorations on August 6th. As stated last week the Strawberry and Cherry Exhibition will be held on July 1st and 2nd.

— THE "Prairie Farmer" publishes the following relative to GIRDLED TREES—"A Wisconsin correspondent writes that field mice or rabbits have girdled several choice Apple trees on his place, and wants to know how to save them. This can be done by bridging over the girdled space with twigs of the same wood connecting the bark above with that below. A sharp narrow chisel is driven into the bark, and twigs cut the right length and sharpened at each end are inserted in the incisions thus made. The wounds should then be covered with grafting wax."

— FOR covering the back walls of plant stoves and providing a face of dark green foliage as close almost as if glued to the wall, perhaps no plant can equal *FICUS REPENS MINIMA*. A wall thus covered in the gardens of N. Clayton, Esq., East Cliffe House, Lincoln, is admired by all who see it. The house in which the Ficus is growing is kept at a high temperature for Crotons, Anthuriums, Nepenthes, &c., which are admirably grown. But fine as the plants are, the back wall, instead of being as unsightly as such walls often are, is the finest feature of the house. The wall is lofty, and the Ficus after reaching the top and having nothing else to cling to hangs over the path gracefully, and by contrast enhances the appearance of the smooth portion of the wall. This Ficus will grow in greenhouses, and has even passed the winter in the open air; but it evidently delights in heat and moisture, and in the house in question produces an effect as attractive as it is undoubtedly unique.

— IN one of the vineries of the same range of glass the DUKE OF BUCCLEUCH GRAPE is growing and fruiting as freely as the Black Hamburgh. The Vine is on its own roots, and is bearing seventeen bunches, principally on what may be termed very long spurs, Mr. Wipf finding that close pruning is not conducive to fruitfulness; and he appears to work on the principle of pruning to the best bud, whether that is 2 or 6 inches from the main rod. Another Vine is growing well on the Muscat stock to which it has been attached; it is bearing one bunch, and the influence, if any, of the stock on the fruit is being waited for with some interest. The fruit of the Duke is much esteemed at East Cliffe House.

— IT is not often that a hedge of the GOLDEN ELDER (*SAMBUCUS NIGRA AUREA*) is seen in gardens, but when grown in that form and well coloured it is remarkably attractive. We recently observed a very fine example of this, a villa garden of moderate size having a dense brightly coloured hedge on three sides, 4 or 5 feet in height. The yellow tint was much better developed than is sometimes the case, and in consequence there was an absence of the sickly hue that occasionally characterises the shrub near towns.

— IN continuation of the second series of LETTS'S POPULAR ATLAS we have received parts 14, 15, and 16, containing five maps each, representing in sections on an enlarged scale England and Wales, Ireland, Canada, and India. Excellent watershed maps of England are included, also one showing the geological characters of the environs of Edinburgh. The execution of the work continues as satisfactory as in the first series.

— WE have received the small but neat catalogue of the DISS HORTICULTURAL SOCIETY'S SHOW, which is to be held on July 12th, in which Roses have the post of honour, special prizes of substantial value being provided. In the open class of twenty-

four single blooms there are four prizes, the first being £5; and for twelve Teas and Noisettes, open to nurserymen and amateurs, the first prize is £2. The Rev. F. Page Roberts of Scolt Rectory is the Secretary of the Society.

— A CORRESPONDENT writes to us as follows on VEGETATION IN THE NORTH-WEST RIDING OF YORKSHIRE:—"The country looks at its best now, and never in my recollection were the Thorns, Lilacs, Laburnums, &c., so beautiful. Forest trees are full of flower. Pears and Plums will not be a heavy crop—the latter not half so many as last year. Laurels and Aucubas have suffered terribly the last two winters, but we have not lost one dwarf Hybrid Perpetual Rose through frost. The end shoot of tens of thousands of forest trees have had to be pruned, but are now making fine growth. I was at the Duke of Devonshire's seat (Holker Hall) last week; the Araucarias and some other Conifers thrive well in that locality, and indeed all through the Lake district."

— THE Newport Pottery Company (Rogers & Co.) have sent us samples of their GLAZED FLOWER POTS. The exterior is bright brown, smooth, and impervious to water. One pot is not glazed quite to the bottom, but with what object we are at a loss to conceive. A rustic pot resembling the stump of a tree is very ornamental. It stands on a raised rim in a saucer to match, but we think if there were three apertures in the said rim to aid the passing away of superfluous water it would be an advantage. That glazed pots are suitable for plants has been proved by Mr. David Thomson of Drumlanrig, and Mr. Woodhead, a noted Auricula grower in Yorkshire. Plants in these pots require less water than those in the ordinary pots in general use. The former, however, are necessarily somewhat more costly than the latter.

— FORGET-ME-NOTS are always admired, especially the useful *Myosotis dissitiflora*; but there is another species less frequently grown, and not equalling the one named in effectiveness, yet it is so distinct in the colour of the flowers that it well repays for attention. This is *MYOSOTIS AZORICA*, of dwarf habit, with narrow oblong leaves, and short spikes of purple-violet flowers, which are freely produced. It is especially suited for culture in pots, and when arranged with the other light blue-flowered forms it presents a striking contrast.

— THE CANTERBURY ROSE SHOW will be held under distinguished patronage on the 30th inst. An open nurserymen's class is provided for thirty-six varieties, the first prize being £6. A class for twelve Teas and Noisettes open to all, the first prize £3; one open to amateurs, the leading prize £5; and another for twelve blooms of any varieties. In the local classes the National Rose Society's silver medal will be awarded for the best box of Roses irrespective of numbers, and the bronze medal for the best Rose in the same classes; also a silver cup, value five guineas, is given by C. Stuart Hardy, Esq., of Chilham Castle, for twelve blooms, six Hybrid Perpetuals and six Teas or Noisettes. "Cheshunt Hybrid and all other Hybrid Teas are excluded from the Tea and Noisette classes."

— THE closing monthly meeting of the METEOROLOGICAL SOCIETY for the present session was held on the 15th inst. at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President, in the chair. Eleven gentlemen were elected Fellows of the Society—viz., F. Crowley, A. M. Davis, Rev. R. Drake, F. H. D. Eyre, W. M. Gibson, E. W. Mathew, J. P., D.L., J. Parnell, M.A., F.R.A.S., J. Rigby, T. G. Rylands, F.L.S., F.G.S., H. Smith, and A. H. Wood. The following papers were read:—1, "The Use of Synchronous Meteorological Charts for Determining Mean Values over the Ocean," by Charles Harding, F.M.S. 2, "The Climate of Fiji," by R. L. Holmes, F.M.S. This paper gives the results of meteorological observations taken at Delanasau, Bua, Vanua Levu,

during the ten years, 1871–80. 3, "Note on the Formation of Hail," by J. A. B. Oliver. 4, "Note on a Comparison of Maximum and Minimum Temperature and Rainfall Observed on Table Mountain and at the Royal Observatory, Cape Town, during January and February, 1881," by John G. Gamble, M.A., M.Inst.C.E., F.M.S. Mr. E. J. Spitta exhibited and described a new mercurial maximum and minimum registering thermometer.

— "VICK'S American Monthly Magazine" has the following upon *CAMASSIA ESCULENTA*:—"Camassia esculenta, the Quamash or Quamass of the Indians, is a member of the Lily family, and grows in all the western section of the country, from British America to California and Utah. The root is eaten by the Indians, as it abounds in starch, and is often an important source of their food supply. The pale bluish-violet flowers are borne in spikes raised about 18 inches high. This plant has been in cultivation for half a century, and is much prized by those acquainted with it. Some varieties of it have been produced from seed, and one, *C. Browni*, is considered quite an improvement on the parent species on account of larger spikes of bloom. East of the Mississippi, over a great breadth of territory, is found another species, somewhat smaller in size in all its parts, and with flowers of a lighter shade; this is *C. Fraseri*. The bulbs of this species have the same nutritive quality as those of the other."

#### HORTICULTURAL KNOWLEDGE.

ALTHOUGH I think your correspondent "SINGLE-HANDED" wrong and inconsistent in some things, as, for example, when he praises the single Buttercup and disparages the Dandelion, which are both Nature's productions, and confounds composite flowers with the double forms of the florists—still it is refreshing to meet with a writer who does not take anything for granted, or who is not ready on all occasions and without inquiry to say ditto to somebody else. We want more sceptical minds of his stamp. Such writers may occasionally deserve criticism and even ridicule, and are sure to receive both. Honest prejudice will assail them uncompromisingly; and those who are wise in their own conceit will smile benignly at what they will be pleased to regard as foibles while accepting any hints nevertheless, and acting upon them on the sly. There is a good deal of this going on in gardening as well as in other things. We want more doubters in these days. It is not enough because somebody says such and such a thing is right, to conclude that it is so.

There are numbers of garden operations advocated or recommended by noteworthy writers that are founded upon mere rule of thumb, and will not bear looking into critically. I see you assuring a doubting correspondent lately that Grapes have "without doubt" been set in a temperature of 50° min. When a matter like that is looked into one cannot help asking the question, Why should not the fruit have set? No reason has ever been furnished to the contrary. Those who recommended high temperatures had never tried any other plan. And this is only an example of horticultural teaching. Could any writer who tells us that for Grapes the heat must be kept up to from 75° to 80° by fire heat night and day respectively in the absence of sun, ever have taken cognisance of the fact that in this country Grapes set out of doors when the temperature at night often falls to 40° or lower? At one place where the writer was, the men during winter and spring had to sit up till past midnight in severe weather to keep the vinery fires burning for fear the temperature should fall below 70° or 75° in the morning; and rather than run the risk of a charge of neglect, which would have been put down to their account, I have known the men blow the glass up to the necessary point when the foreman came through in the morning, for a drop to 60° in a vinery in flower was an alarming circumstance. In that place, on the most moderate computation, I should say at least £100 was spent uselessly every year in keeping up unnecessarily high temperatures, and so never did any good but much injury to the Vines. Fancy consuming £1000 in ten years in the stoke-hole furnaces! There is no reason to suppose but that there are other practices going on now in gardens which are quite as suicidal. One man teaches them, and his unthinking pupils perpetuate them. Is not this so?—INQUIRER.

UTILISING ROSE SUCKERS.—Now that growers of standard Roses are being bothered with the Briar suckers which spring up,

will you allow me to mention a plan of utilising them? It may not be new to some of your readers, but I do not remember seeing it suggested in the *Journal*, while I have practised it for some years with considerable success. If the sucker comes from an underground eye in the stem there is no choice but to cut it off; but if, as is mostly the case, it proceeds from one of the roots a few inches from the stem, I take a sharp spade and thrust down about half-way between the sucker and the tree. If the sucker dies there is no harm done, but in nine cases out of ten it will be none the worse for the check after a day or two. A week or so after the severance I use the sucker as a stock, nip out the point, and insert a bud level with the surface of the ground; then in autumn I dig it out, carefully cut out the eyes on the stock below the inserted bud, and replant wherever I like. By this means I stop what would be an injury to my Rose trees, root-prune them, which is a benefit, and increase my stock almost at one operation without the trouble of planting Briars or of making and inserting cuttings, in both of which cases there is often a large per-centage of failures.—J. B.

### THE EFFECTS OF ELECTRICITY ON VEGETATION.

**MANURES.**—What constitutes a manure? This question is more easily asked than answered, for it is difficult to say what it is that does not act as such in one way or another. However, we may safely commence by dividing them first into two opposite classes—one acting directly as carbon food; the other, not furnishing carbon, but by chemical action stimulating the plant to a more active appropriation and assimilation. Like stone, bricks, or timber for a house, carbon is the first necessity of a plant for building up its framework and for constituting the basis of all its productions. It is commonly stated that all this carbon is derived from the atmosphere, but such a supposition originated in bygone days when vegetable physiology was little understood; yet even in these more enlightened times it still clings to us like any other bad name. It has been provided for far otherwise than that vegetation should be starved upon atmospheric carbonic acid gas. A provision exists for supplying them abundantly with carbon that has already undergone one or more stages of preparation, and thus become converted into a more suitable food. Every drop of water imbued with either vegetable or animal remains, from pond water and the boilings of vegetables up to the richest drainings of a farmyard manure heap, all convey more or less carbon food in its most acceptable form. Hence it is that green vegetables dug or ploughed into the land furnish by their juices an immediate supply of ready-prepared food, and thus constitute a rich manure. But then this superabundance of food would be of little or no avail without an additional stimulus to help its consumption; and here again we have this requirement supplied by the simultaneous decaying of its substance. It is now a well-understood fact that all additions made to a plant's growth are effected by a series of chemical changes. Then, on the other hand, these chemical changes cannot originate themselves, but are dependant upon extraneous agency—that is, by some other force applied either to the roots only, or to the roots and leaves conjointly and in adequate proportions. One of the most prominent and best understood of these resources is that of heat or warmth, and it is well known to every chemist that heat is a powerful agent in promoting chemical action; but also this chemical action in one place may produce heat or may reproduce chemical action in another place, as in the battery. In my boyhood an apprenticeship, more than half a century back, to a practical and manufacturing chemist bringing me into contact with many phenomena at that time little understood, led to a closer investigation than ordinary rule-of-thumb processes were usually accorded; and finding it stated by Sir Humphry Davy that acids combined with alkalis because they were in opposite states of electricity, one negative and the other positive, it was at once felt that herein existed a law which underlies the whole matter of chemical combinations, and rendered that which otherwise could not be accounted for perfectly clear and intelligible. Subsequently Faraday decided that the chemical affinity of one substance for another and ordinary electric attractions are one and the same thing, thus indissolubly connecting the one with the other, the apparent difference being only that they occur between opposite kinds of bodies, the former soluble, the latter insoluble. Thus heat may produce electrical attractions between the solid parts of a plant, whilst at the same time it develops chemical action amongst its soluble components, and converting liquids into solids.

It must not, however, be deemed a reflection upon the then state of chemical teaching as compared with later times, since even within the last year or two a critic, whose name is constantly before the public and luxuriating in the title of F.C.S. (Fellow of the Chemical Society), commenting on some remarks of mine,

made the unwitting admission "that he was unable to see that electricity had anything to do with chemistry!" This is introduced here only because it affords a very valuable and instructive lesson. Criticism coming from anyone who may not be well up in modern physics can hardly merit attention, and as considerable pains have been taken to give corroborative fact as far as possible, any disputed points will have to be settled between these harmonising evidences and the unsatisfied critic.

It is thus by the reciprocal effects of these chemical actions and electrical attractions that the purely chemical substances deserve the title of manures—that is, not by any direct food to the plant, but by their chemical changes developing force which acts on the plant by induction. Dip a piece of quicklime into a solution of sulphate of ammonia, and it will instantaneously afford a strong ammoniacal effluvia. A piece of fresh-made mortar will act in the same way, but the older and milder the mortar the slower will be its action. Again, any carbonate or other salt of lime will be equally decomposed by the sulphuric acid composing the sulphate, and a sulphate of lime will be the result, the ammonia disappearing; hence it is that decayed leaf mould, which derives its great superiority as a rich soil from the abundance of its raphides or oxalate of lime crystals, responds so effectually to the application of sulphate of ammonia to whatever plants may be growing therein. In this way crushed or dissolved bones become more active when combined with this sulphate, but then the latter must be in weak solution. Now, were the lime so appearing within the texture of plants in the same form or composition as when applied to the roots, there would then be some appearance of reason in its being supposed to be simply absorbed or taken in mechanically; but such is not the case. The raphides are purely a vegetable combination and construction, and play a most important part in the economy of plant-formation, and one hitherto but little regarded. They in a great measure serve the same purpose as the bones and shells of animals in giving stiffness and support to the softer tissues; and whilst, with but only one known exception in the *Welwitschia*, an anomalous plant altogether, these lime crystals always form an internal skeleton, just as silex or flint occupies the external surface of straw and canes, &c., for the same purpose—namely, to give rigidity and strength for the support of a slender and delicate stem. Lime and silex are therefore indispensable ingredients of the soil for the respective classes, and are not merely accidentally present in the plant as might be supposed, but they indicate also some special action in being thus dealt with. It is an indisputable fact that lime in its caustic state, or as lime water, is not adapted for appropriation by vegetable forms, but that it must be in combination with some other agent to enable it to be decomposed, and to have one of its elements sent one way and the other rejected or driven off in the opposite direction to form a balance, and this rule holds good with every other substance of a like kind. Now this resolves itself into what is commonly termed "root action." It is this electrolysis process that enables the plant to select its food. It is the effect of the electro-polar action taking place between the roots and the soil on the one hand, and between the stems and leaves and the atmosphere on the other. Hence, should these relative conditions be in an enfeebled state this decomposition could not be effected, and hence the caution to be exercised in the application of stimulating appliances. Let the plants be first well syringed or watered overhead until freshened, and half an hour afterwards such applications may be made with safety and benefit. Such compounds as the sulphate and urate of ammonia, nitrates of soda and potash, chloride of ammonium or sal-ammoniac, nitrate of ammonia, chloride of sodium or common table salt, &c., all act partly by the force liberated in their decomposition and partly by their moisture-attracting propensities, keeping the surface of the soil damp, and promoting the polar action between the earth and its superincumbent atmosphere. Let any damp cold frame with a northern aspect have its floor sprinkled with common table salt and closely shut up for the night, and the probability is that on the following morning the whole interior will feel warm and comfortable in comparison with what it previously had been.

Pour a little cold water over some fresh-burnt lime, and it will soon become too hot to hold. The heat here, however, is partly due to a decrease in bulk of the water in entering into combination with the lime as well as to the chemical action, but it thus serves to warm cold lands. Burnt earth and fresh coal cinder dust, also, by entering in the same way into combination with water, oxygen, and carbonic acid, furnish "force" so as to be serviceable as manures, as well as benefiting the texture of the soil.

Hitherto we have been putting the case as one of "food without appetite and of appetite without food," but we now come to the



consideration of those materials which supply at the same time both the nourishment and the appetite for promoting its consumption. Notably among these are guano, night soil, and other manures, which contain a variety of chemical ingredients as well as of organic remains consisting of albuminous compounds. Ammonia is, however, probably one of the most important elements, and which superiority is commonly supposed to arise from its affording nitrogen; but the more likely reason is that albumen is slightly soluble in its solution; hence, soot added to decayed stable manure makes a far more efficient liquid manure than when the latter is used alone, and probably this would be more generally made use of were it not for the difficulty and unpleasantness of its preparation; yet, if the following plan be adopted these nuisances will all disappear, as I have experienced for years past. For a cask of any dimensions take a common cheap skep, such as are made to encase one, two, or three-gallon stone bottles, or any other that will just enter the former and hold a few spadefuls of manure. Put in first a spadeful of manure and pack it closely down to the bottom and around the sides, so as to form a cavity that will hold a pint or more of good soot from the top of

a chimney where coal fires are burnt; next add another layer of manure, pressing it close round the sides as before, then more soot, and so on until full, when a plate or tile should be placed upon the top to prevent it floating. Now insert this in the cask, supporting it by a rod through the handles resting on the edge of the cask, and fill up with water; let it remain for three or four days, lifting it out a few times during the interval to drain; then lift it out altogether, and support it on two sticks across the top, and pour a few canfuls of fresh water to wash out by displacement the manure left in it, and when sufficiently drained the contents may go back to the manure heap for further decomposition, or may be made use of in any other way.

The solution thus obtained forms the "stockpot," and may be diluted to any extent according to circumstances. It may be used either alone of almost any strength, or it may be further enriched by the addition of about a teaspoonful of sulphate of ammonia to each gallon of liquid. Or, on the other hand, a very good substitute for guano will be formed by introducing a solution of chloride of lime in the place of the ammonia. The chloride solution is made by adding 2 ozs. of the dry powder to a wine bottle (24 ozs.)

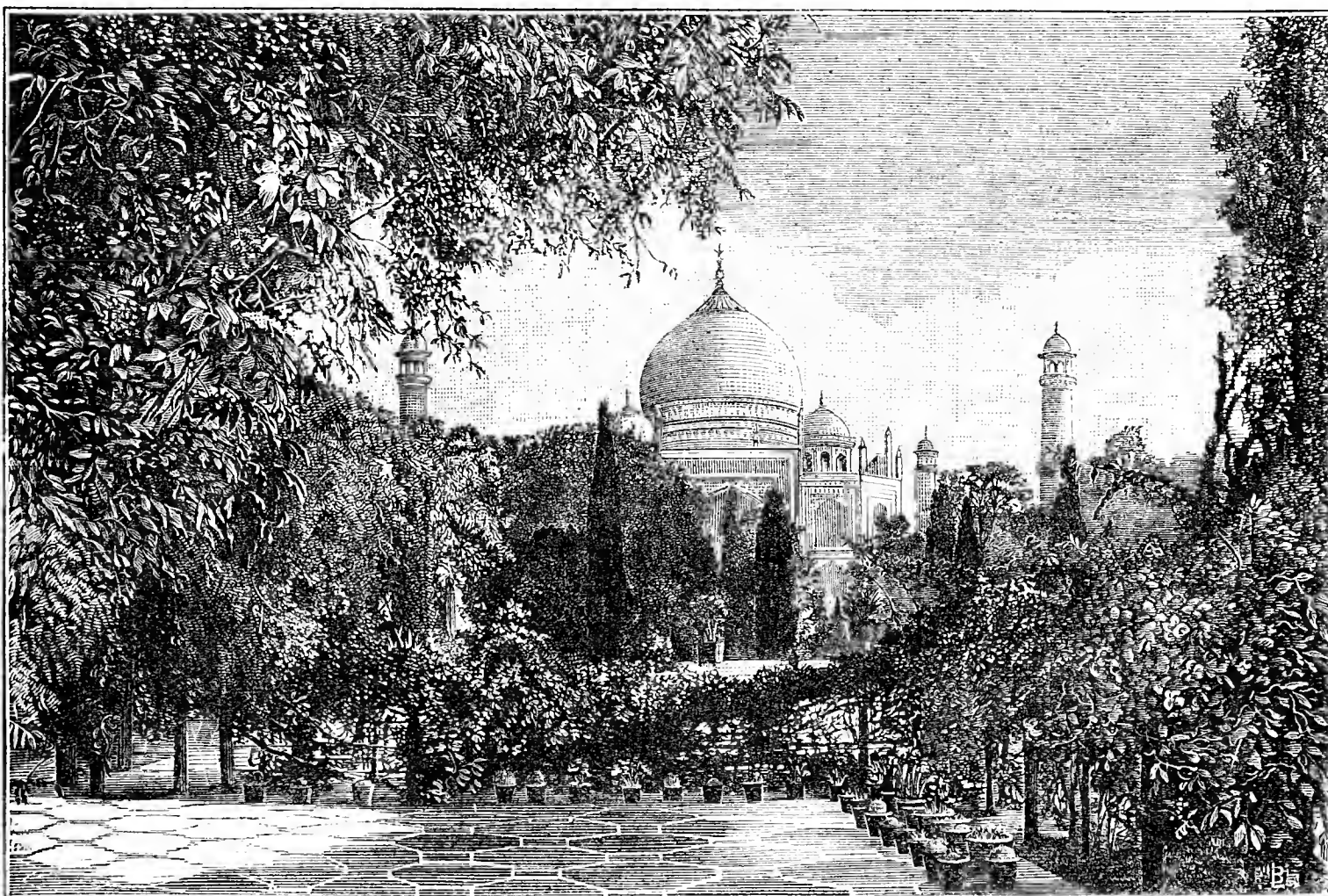


Fig. 113.—TAJ GARDENS, AGRA.

of water, shaking well up several times before using. From one-half to an ounce of this liquid to be added to each gallon and given to Stocks, Primulas, Primroses, and numerous other soft-stemmed plants, will be found highly efficacious.—W. K. BRIDGMAN, *Norwich*.

#### THE TAJ GARDENS, AGRA, INDIA.

WE have been favoured with views and a brief description of the Taj Gardens in the city of Agra, which was originally the capital of the Mogul Empire, one of which, known as the Locust View, is represented in the annexed engraving.

The Taj Garden contains fifteen acres of cultivable ground. Many vistas have been made during the last few years. Ten years ago nearly the whole of it was in the native style, in fact little better than a native market fruit garden. Eight plots, containing nine-tenths of an acre each, have been cleared and converted into ornamental garden, which is being kept up at very little more expense than the former native style. The fruit revenue has suffered to some extent, but not much, as the best fruit has been left. There are about four hundred varieties of choice Roses

planted by Mr. Smith the Superintendent, some of them not by any means old, as the following have bloomed this season—Diana, Magna Charta, Princess Beatrice, Antoine Mouton, Anna Blanchon, Pierre Guillot, Madame Ducher, Julius Finger, Souvenir d'Adolphe Thiers, Paul Neyron, Madame Maurice Kuppenheim, Madame Alexandre Bernaix, Madame Lambard, Capt. Christy, and many others too numerous to mention. A large bed of *Maréchal Niel* on rough trellises has been a pleasing sight.

This view is taken from the south-west corner of the marble platform or dam. The plants in pots on the ground are *Opuntias* of various curious kinds. The hedge in front is *Bougainvillea spectabilis*; the Palm leaf hanging over the tall Cypress is *Arenga saccharifera*; the thick dense foliage is mostly composed of *Mimusops Elengi*; the plants in tubs on the platform are *Draenas* and *Excaecarias*. The view was opened out about two years ago, and is called Locust View because a large army of locusts visited the garden. They did not fly as locusts usually do, but came marching, crept over the high walls, and ate the leaves and flowers of a large number of ornamental shrubs and creepers. In a very short time they devoured the leaves of the *Bougainvillea* which now forms the low hedge. It was perceived that this

opened out a new view of the building, and at once the hedge was lowered. The locusts marched from the east into the garden because their wings had not grown; hence they remained in the garden until they were all destroyed. Twenty men and boys were employed ten days in destroying them. They greedily ate the bark of *Cupressus sempervirens* and *Juniperus prostrata*. The naked trees and shrubs presented a curious sight; but no permanent damage was sustained, as they were soon all covered with light green new foliage.

#### FRUIT PROSPECTS IN IRELAND.

HAVING recently had the privilege of seeing the gardens of the Duke of St. Albans, Newtown Anne; Lord Donoghmore's at Knocklofty, Mr. Bagwell's at Marlfield, Mrs. Malcomson's at Minella; Mr. Kiall's, Heywood; Summerhill, Glenview, and many others within an easy radius of Clonmel, I submit the following as a fair summary of the condition of the crops:—

*Peaches*.—At Knocklofty Mr. Ryan has a superabundant crop in the several ranges indoors. He says he removed a dozen for every one left, and will hardly lose one during the stoning period. It would be difficult to find a heavier crop on a sash-covered wall than at Minella; and this, unlike other cases, is the normal state every year. Wall Peaches, without some protection in spring, cannot be said to be a success anywhere around here.

*Vines*.—Almost in every garden with which I am acquainted there is from a heavy to a fair crop, but in this locality the heavy yield is invariably on the young wood—young canes of last year brought up beside the old. As usual Black Hamburgh, Royal Muscadine, and Gros Colman are conspicuously good.

*Apples*.—Some of the heaviest crops I know are at Glenview, where at least forty of Rivers' best sorts are variously trained. The espalier system here is notably good, and hardly deserves so much neglect as is now customary. In all other cases the crop, except in a few instances where it was heavy last year, is much better than in 1880.

*Pears*.—There is hardly an exception in reference to Pears. Except something unforeseen occurs the crop will be above the average—from fan, bush, and cordon-trained trees.—W. J. M., Clonmel.

#### THE SCOTTISH PANSY SOCIETY.

THE thirty-seventh annual Exhibition of the above Society was held on the 17th inst. in the Royal Scottish Society of Arts' Hall, George Street, Edinburgh. The past winter had damaged the stock of many growers, and where the winter had not dealt unkindly the growth in many districts was late, and as a consequence the present Exhibition suffered somewhat when compared with its predecessors. The deficiency in size and general excellency was more marked in the Show varieties than in the Fancies—indeed, there were no really fine stands of the former, although in many of the leading stands there were individual blooms of fine quality. Many stands of Fancies were very good; but a noticeable fact in both sections was this, that none of the many seedlings staged were awarded certificates. We have no doubt many good flowers will be found amongst these, but the want of finish told against them as exhibited.

There were altogether seventy-four classes for Pansies or Violas, but we have noted only the chief prizes. And here it would be well to direct the Committee's attention to the difficulty there is in finding out the names of the flowers. Those that have names attached are written on a sheet of paper and left either on the stand it belongs to, or, perhaps, on a neighbouring lot, and it is necessary to wade through a list of twelve, eighteen, or twenty-four sorts to obtain the name of any striking flower, with, perhaps, four or five other devotees waiting their turn. And even worse is it in the case of the gardeners' and amateurs' classes, for there, although the want of names ought, according to the rules, to subject the delinquents to disqualification, yet scarcely a stand in these sections is to be found with names. Shows of this kind lose their greatest claim for public support if they fail to prove educational by enabling visitors to obtain through these exhibitions a knowledge of the finest cultivated varieties.

In the nurserymen's class for twenty-four Shows Messrs. Dicksons and Co., 1, Waterloo Place, Edinburgh, were first with the following varieties and seedlings—Duchess of Edinburgh, Ladyburn Rival; seedling No. 4, a dark self; seedling No. 5, a good white self; Robert Donaldson, The Mede, G. Cunningham, Mary McComb; seedling No. 10, a fine velvety self; John Borrowman, Mrs. Goodall, Pilrig Model; seedling No. 14, yellow ground, bronze belting; Mrs. Dodds, Mrs. J. Thomson, Polly Travers, Novgorod, Jenny Anderson, and Miss Jessie Foote. Mr. W. Dickson, Ladyburn, Paisley, was a good second, and Messrs. Downie & Laird, Pinkhill, third.

In the corresponding class for twenty-four Fancies Messrs. Downie and Laird occupied first place with a grand lot, conspicuous being some unnamed seedlings. Their stand contained splendid examples of these:—J. Gardiner, Mrs. E. H. Wood, Mr. Scot Plummer; seedling No. 6, a grand flower; Luck's All; Mrs. Bliss, extra; Lady Fal-mouth, fine; R. K. Mitchell, Mrs. W. Brown; seedling No. 13, fine;

Vesta, Mrs. Barrie, R. Forrester, seedling No. 18, seedling No. 19, J. B. Downie, R. Cuthbertson, Mrs. Jamieson, extra; R. K. Bliss, and Robert Laird, extra. Any Pansy fancier who is at present without any of the above must be content to consider his collection deficient. When he obtains them he will be able to hold his head up again amongst his brethren. Messrs. Dobbie & Son were second with a stand inferior to the above by many points.

In the gardeners' class for eighteen Show Pansies Mr. Borrowman, Beeslack, was first. Mr. Findlay, Lennox Castle, occupied the first position for eighteen Fancies with a fine lot; Mr. Borrowman being a good second. For the corresponding classes for amateurs only Mr. Fleming, Berwick-on-Tweed, was first, also in most of the smaller classes. This exhibitor's flowers were amongst the finest in the room. For twelve Show and twelve Fancy Pansies, open to both foregoing sections, Mr. Fleming was again first, his Show varieties telling strongly in his favour. This gentleman was also first for the same number of blooms and sections. For the best white ground Messrs. J. Cocker & Sons, Aberdeen, were first with Sunnypark Beauty; for best yellow ground, Mr. A. Borrowman with Corsair; for the best dark self, Mr. McComb with seedling Pilrig Gem; for the best white self, Mr. D. Findlay with Mrs. Goodall; for the best yellow self, Mr. Ross, Laurencekirk, with Lizzie Stuart; for the best blue self, Mr. Fleming with Sunnypark Rival; for best crimson self, Mr. D. Malcolm, Kirkintilloch, with Mauve Queen; and for the best flower in the room, Mr. McComb with the same bloom which took first as the best dark self—Pilrig Gem.

For twenty-four bunches of bedding Violas Messrs. Downie and Laird were first, also for twelve bunches of bedding Pansies. There were also classes for flower stands filled with Pansies or Violas, and also for bouquets, but these were all more of use as warning beacons than noteworthy in any other respect. Messrs. Todd & Co. of Maitland Street showed a bride's bouquet composed of white Violas very tastefully arranged. We understand the Society is in a good position financially.

#### GARDEN ARRANGEMENTS.

AGREEING with most of what is said in your article on "Shows and their Uses," on page 455, there are one or two points on which I desire to say a word. You say "It would be an unfortunate monotonous world if all gardens were arranged according to the taste of one or two individuals;" which is very true as far as the minute details of arrangements are concerned, to which the remarks probably applied, but in the larger matter of general arrangements, which affect the landscape and give special features to a place, it always appears to me that there are certain natural laws for our guidance which cannot be put aside very much without courting failure.

I have never read a book on landscape gardening, and therefore do not know what our Loudons and Reptons have to say on the subject, neither am I quite sure of what I should like to say myself; and I beg of my readers not to take it for granted that what I shall say is correct, as if I were giving instructions about the culture of some plant with which I am pretty well acquainted, but it must be taken only as the rambling thoughts of a brother learner. I know, however, that there are professed landscape gardeners in this beautiful England of ours, who either ought to be sent to another country to practise their art, or be confined to fens and bogs where there are no hills, dales, nor trees to interfere with their elaborate designs; and I would caution all proprietors to treat with suspicion any professor, however great a name he may have, who would mark for removal by spade or axe any tree or clump of trees possessing the least claim to beauty, merely for the sake of fitting in some ready-made design which he carries in his pocket or his head, and which has no special suitability for any place in particular, but which, according to his idea of taste, might with slight variations be made to accommodate itself anywhere. Possibly not much harm would come out of it if all gardens were designed according to the taste of one or two individuals, provided these were men of broad ideas; but it is the men of one idea who are to be shunned—those who would give you the same plan for a garden on a Wiltshire down as they would for one in a Lincolnshire fen. I have no sympathy with those who would banish any particular style of decoration from our gardens, for we certainly have not too much variety, but I should like to see some attention paid to the surroundings.

I suppose most people will admit that a geometrical garden among the gravestones of a churchyard would not be in good taste; yet if you teach this practice to everybody you will have made some advance, for I saw one such some two or three years ago, and some people were looking on evidently in admiration. I do not suppose this was planned by a great professor, but I have seen proposals from men who have made themselves a name, which I think are quite as destitute of taste. For instance, I know of a splendid mansion some three centuries old, which unfortunately, like most other mansions of that age, stands in a hollow, and on one side which is the best decorated and may be



called the front, though the entrance is not there. The space is rather limited owing to a hill a short distance and an intervening stream. The hill is abundantly clothed with splendid timber, and the stream was treated by the master hand of "Capability" Brown, which is saying enough to convince most people it was made the most of. So far, then, I think the main features cannot be improved, but there are details in the arrangements between the stream and the house which do not satisfy everybody, including the noble proprietor and a much smaller individual who has the honour of being employed by the said noble proprietor to grow his Cabbages and Geraniums. The smaller individual recommends a clean sweep of flower beds and gravel walks on that side in order to show as much greensward as possible, broken here and there by suitable trees and shrubs. This, he maintains, would apparently give more space and add dignity to the two noble features already mentioned—the timber-covered hill and the winding stream. And what do you think was proposed by a great professor of landscape gardening, who was entertained by the proprietor a whole week that he might become familiar with the peculiarities of the place? The ground was surveyed, and a very elaborate plan was prepared containing magnificent temples, statuary, balustrades, terraces, and geometrical flower beds—all very beautiful no doubt, and possibly in harmony with the style of the mansion, but totally disregarding all the beautiful natural features of the place, and which could easily have been planned in London or elsewhere with no other help than a photograph of the house.

I believe, and I shall be glad to be corrected if wrong, that a geometrical garden is not suitable to have near a mansion which stands on the lower part of undulating ground, and that whenever any kind of formal decoration is used in such grounds it should be quite enclosed, so that it can be enjoyed by those who like it without being a blot on an otherwise beautiful landscape. On the other hand, when a mansion stands on high ground there is no difficulty in having as much formality as anyone can desire without spoiling the picture in the least, if it is handled by a real artist in the profession.—WM. TAYLOR.

#### UNHEATED HOUSES FOR FRUIT.

"A SURREY PHYSICIAN" at the close of his excellent article on page 480, suggests that cheap structures might be erected with the object of rendering fruit culture under glass remunerative. There is no doubt that this may be accomplished with a fair amount of success in the southern counties and in sheltered localities; but the erection of unheated structures on high elevations in the colder districts of this country would probably end in considerable disappointment. These deductions are arrived at not by reasoning alone, but by observation. I have seen in Messrs. Rivers' establishment at Sawbridgeworth large cheaply-erected houses—mere sheds covered with glass—and they were sufficient for insuring valuable crops of fruit of Peaches, Nectarines, Cherries, Pears, and Grapes. There can be little doubt that those houses have answered the purpose as well as if the cost of erection had been five times greater, and they must have proved highly remunerative. What has been done in Mr. Rivers' nursery in Hertfordshire may, it is reasonable to suppose, be accomplished in other places equally well situated; but it is another thing to apply the same system to much colder, higher, and more exposed positions in the northern counties. Large structures have been erected in Yorkshire for the purpose of insuring crops of Peaches and Nectarines without the aid of artificial heat, and after years of failure boilers and hot-water pipes have been found an absolute necessity. The system suggested by your correspondent is no doubt quite practicable in the county in which he resides, as well as in many others; but as the *Journal* circulates widely, it appears to be necessary to suggest to those less favourably situated to act cautiously in incurring the expense of erecting glass structures, unless they are also prepared to afford the means of excluding frost from them, for otherwise they will almost certainly invite disappointment instead of reaping a reward.—A TRAVELLER.

#### NOTES FOR AMATEURS.

THE following notes will be found of advantage by many amateurs, as at the present time there are numerous operations requiring immediate attention.

**STOPPING PLANTS.**—Amateurs often contrast their tall slender specimens of many kinds of plants with the compact bushy specimens grown by professional gardeners. The mystery is easily explained: Few plants are naturally bushy in habit, the majority requiring to be either frequently pruned or pinched back.

The former operation is performed after resting the plants and ripening their growth, and usually just prior to their being started afresh. The pruning alone is not sufficient to make good specimens, but to properly balance the growth all those shoots inclined to outgrow the remainder must be freely pinched back. From these will result a greater number of less vigorous growths, and in addition to this the stopping will encourage the growth of those weaker unstopped shoots which would otherwise be overgrown. These remarks are especially applicable to Pelargoniums of all kinds, Fuchsias, Eupatoriums, Solanums, Lemon-scented Verbenas, Bouvardias, Sparmannias, Veronicas, Plumbagos, of greenhouse plants; and among stove plants to Gardenias, Vincas, Asclepias, Bougainvilleas, Eranthemums, Justicias, Centropogons, and a few others. The finger and thumb must, if good plants are desired, be also freely used in the case of numbers of spring-struck plants such as Salvias, Pelargoniums, Fuchsias, Coleuses, Heliotropes, Begonias (tuberous-rooted kinds excepted), Crotons, and any young plants of the above-mentioned kinds. Pinching-back, however, must not be practised for too long a period, especially if sufficient root room to support a large head cannot be given. As a rule a well-balanced head consisting of a few strong shoots give the best results, and it is even advisable to completely remove much of the inner weakly growth. Another and very frequent cause of tall slender growth is the habit many have of indiscriminately crowding their plants, forgetting or being perhaps unaware that a few well-grown plants give much the better results.

To properly prepare for winter flowering, and also to give room for the development of Begonias, Gloxinias, Coleuses, Balsams, Fuchsias, and Cockscombs, it is advisable to plunge or stand the following in a warm position outside. Solanums, Eupatoriums, Sparmannias, Zonal Pelargoniums, Browallia elata, Salvias, Carnations, Roses, Spiræas, Deutzias (these should not have a very hot position), and Callas.

**BALSAMS.**—These, if creditable specimens are required, should not be allowed to become root-bound in the earlier stages of growth, and should also be grown as near the glass as possible. They succeed admirably in a frame on a partially spent hotbed, syringing to keep down red spider, and closing about 4 P.M. Plants in 4-inch pots or of less size may be shifted into either 8 or 10-inch sizes, potting deeply up to the first side shoots if possible, and these will then emit roots at their base. A rough rich loamy soil suits them, and a liberal top-dressing of manure should be given later on. The side shoots may be lightly tied down to short stakes inserted round the sides of the pots, and it is advisable to remove the first few blooms. Balsams when well established require abundance of water at the roots, and are much benefited by occasional supplies of liquid manure. Sturdy floriferous plants are often exhibited by cottagers which are grown entirely outside. Seed may still be sown.

**COCKSCOMBS.**—These also succeed admirably in frames with a little bottom heat, or they may be grown on shelves near the glass, but they are seldom grown to a good size in a cool house. The seedlings should be shifted into 5-inch pots, and from these again into 10-inch pots, but the final potting should be delayed till the head is forming, when the best may be selected. A rich and rather light loamy soil will suit them well, and they may be potted deeply, thereby reducing their heights, and the stems will emit roots freely.

**BROWALLIA ELATA.**—This pretty blue-flowering plant is most easily grown, and may be had in bloom either in the autumn or during the winter if the house can be kept slightly above the ordinary greenhouse temperature. Prick out the seedlings into small pots, and when well established pinch out their heads, and when breaking afresh shift into 6-inch pots. Any rather rich soil will suit them, and during the summer they should be placed outside, be pinched back till a good head is formed, and be regularly supplied with water. For late flowering, seed may yet be sown.

**CHIRYSANTHEMUMS.**—If these have not received their final potting let them be shifted into 9 to 12-inch pots at once; to the rich loamy soil may be added a sprinkling of soot, pounded oyster shells, or crushed bones. When potting allow space for a good top-dressing later on. The plants are best grown in a sunny open position and not plunged. Some of the best blooms are obtained from plants grown in a single row along the kitchen garden paths. They require much water in these positions, but the growth made is of a superior character. Those intended to form dwarf specimens must be kept stopped and trained. The finest blooms are obtained from plants grown with a single stem, these being staked and allowed to grow freely, and either stopped when 2 or 3 feet high, or allowed to grow to their natural height, when they will produce three shoots, the number aimed at in either instance.



all lower side shoots being removed. Chrysanthemums can be readily lifted from the open ground, and the young plants may, to save labour, be planted out in a good open border. If kept pinched back during this month good specimens may eventually be lifted for flowering, with perhaps the loss only of a few lower leaves.

**CARNATIONS.**—The Tree or perpetual-flowering varieties of these are of great value for winter flowering. Old plants are not retained by good growers, the young plants from autumn or spring-struck cuttings giving better results. These, when well established in small pots, may be transferred to 8-inch or 10-inch pots, and be grown for a time in a cold frame, and afterwards in the open. They should not be stopped in any way; the central growth, and later on the principal side shoots, being supported with stakes.

#### GARDEN TENTS.

TENTS and marquees are prominent features at horticultural and agricultural shows, as is indicated by the oft-employed term

in reference to the displays—"a great show of canvas." Tents are perhaps the oldest of habitations, yet this ancient mode of shelter has also become a modern necessity during the summer months, and a most enjoyable adjunct of the garden. Tents have of late years been in greater demand for lawns since the pleasurable and healthy garden games of croquet, lawn tennis, &c., became popular. They are made of various forms and sizes to meet all requirements, and the importance of tenting and shading materials were recognised by the Royal Horticultural Society by the offer of prizes for them at the late summer Show. In the silver medal collection of Mr. Benjamin Edgington of Duke Street, London Bridge, the new patent umbrella tent attracted much notice, and its suitability for small lawns was apparent. This tent is shown in the accompanying figures—in a closed form, showing its portability; and open with walls, the latter of course being optional. The advantages claimed by the manufacturers for this patent over the old umbrella tent are threefold—Greater simplicity of construction, superior strength and lightness, and increased facility of erection. Instead of the double set of ribs and stretchers used in the old umbrella

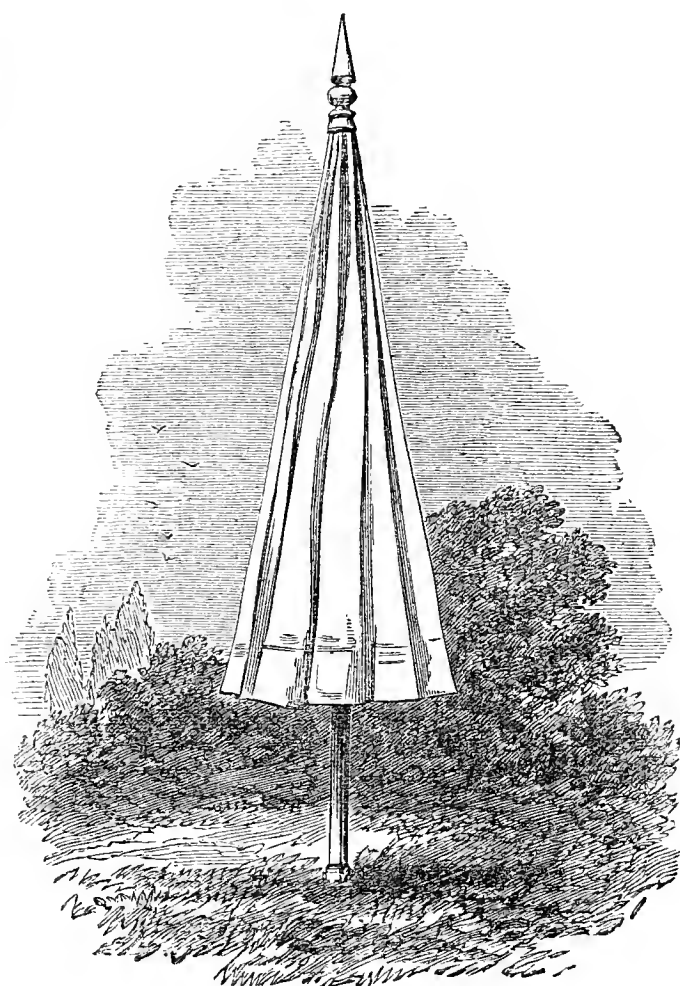


Fig. 114.—Umbrella Tent Closed.



Fig. 115.—Umbrella Tent with Walls.

tent, which was of precisely similar construction to any ordinary umbrella, this patent dispenses entirely with the ribs, and the tent is opened by pulling down the runner instead of pushing it up; and this can be done with ease by one person. The ample space between the lining and the outer cover forms an air-chamber of great value in warding off the heat of the sun. The pole is dropped into a socket which is let into the ground, and the tent can be altogether removed in a few minutes. Smaller and larger forms are made, more simple or more elaborate than the one represented. Another tent (see page 515), exhibited by Mr. Wm. Cains of Poole, for which a certificate of merit was granted at the same Show—also attracted notice by its novelty and utility. It is square, or nearly so, without a centre pole, and the seat and table inside are convertible into a box 2 feet by 18 by 9 inches, into which the tent and its appurtenances can be packed. It is referred to in our report of the Show on page 462, but the figure will afford a better idea of this strong, neat, and handy canvas shelter.

#### PYRETHRUMS, SINGLE AND DOUBLE.

YOUR correspondent "SINGLE-HANDED" since he published his celebrated protest against double flowers ought to feel himself

highly honoured, for not in the *Journal of Horticulture* alone have his remarks been criticised, and generally with considerable ability, also in a manner that makes even adverse criticism welcome to all, and nearly always instructive. The champion of single flowers will find his task a difficult one if he hopes to turn the tide against Roses as they are shown at the great exhibitions, and he will not find it easy to make the majority of people believe that single Hollyhocks, Asters, Marigolds, Chrysanthemums, &c., are more beautiful than the double forms; while, on the other hand, his opponents do not appear to clamour for double Auriculas, Polyanthus, Phloxes, Pansies, Verbenas, Calceolarias, Gladioli, and Orchids.

The general position of "SINGLE-HANDED" has not yet been seriously shaken. A vast number of ardent lovers of flowers entertain strong opinions that there is too much formalism in the ideal of the advanced florists, and they will not be bound by their rigid rules either as applied to double flowers or single. Nature produces double flowers no doubt, just as she occasionally produces lambs with two tails and calves with two heads; but there are people who will not admire monstrosities either in the vegetable or animal kingdom. But to the Pyrethrums.

If your correspondent was at South Kensington on the occasion of the great Show there he would rejoice in a triumph, for

he would see that the single Pyrethrums had far more admirers than the doubles, and in all probability the orders booked for the former trebled those of the latter, just as a great plant-manufacturer could not produce single Dahlias fast enough this spring, while the doubles were comparatively uncalled for. This may be adjudged an expression of bad taste, perhaps, by certain florists; but we must accept facts, cherish freedom, and respect the judgment of the majority. This as regards Pyrethrums was undoubtedly in favour of the single flowers, which is not to be wondered at, for their colours were far more brilliant than those of the doubles.

There is further a great variety of single forms. A select few were named by "L. C." last week, but they will not be sufficient for many cultivators, who without an extravagant outlay can have quite a good collection for the adornment of their borders and the decoration of their rooms. Such a collection is the following, selected from the varieties in Messrs. Kelway's nurseries at Langport:—Albion, pure white; Amy Hare, amaranth; Calphurina, French white; Cybele, French white; Coningsby, carmine; Corelle, cherry rose; Crimson Gem, deep crimson; Dorothy Compton, flesh; Duke of Albany, cherry red; Foix, rose, white ring roundstamens; General Roberts, crimson scarlet; Homerus, crimson and white mottled; Juno, rosy lilac; Magnoletti, white, tinged flesh; Mercury, rose; Mrs. Laxton, violet crimson; Romeo, scarlet; Roscius, pink; Rosy Morn, cherry rose; Sir Jos. Porter, bright carmine; Sirdar, carmine; Speciosissima, amethyst; Thos. Carlyle, purple crimson; Triumphans, rosy purple; Village Maid, pale flesh; Vivian, cerise; Zanetta, flesh; and Zarita, carmine rose.

Still so fine are the doubles that they may well be grown by all, and will be grown by many, therefore a few choice varieties are submitted:—Lady Derby, silvery flesh; Rembrandt, rosy purple; Capt. Boyton, crimson scarlet; Capt. Nares, bright crimson; Princess de Metternich, white; Mont Blanc, pure white; Cleopatra, yellow and white; Duchess of Edinburgh, mauve; Solfaterre, cream; Madame Billard, white, tinged rose; Minerva, rose; Vance, cream, tinged flesh; Kreimhilda, peach, tinged yellow; and Flaccida, peach.

The varieties above named all possess merit, but in the race for popularity I believe the single flowers will win. I shall grow both, for I belong to the majority, and can enjoy possibly what an orthodox florist would despise; yet my "ragged" flowers probably afford me as much satisfaction as he derives from his symmetrical blooms.—A FREE FLORIST.



#### HARDY FRUIT GARDEN.

It is of the greatest importance to keep fruit trees trained to walls or otherwise, free from insects, which during a dry cold season such as the present has hitherto not been an easy task. To facilitate the operation the foreright and other unnecessary shoots on trained trees should be cut back so as to form spurs, or be removed altogether as may be considered expedient. In most instances the spray will be more infested with aphides than the older leaves at the base of the shoots, therefore by removing those parts much is effected towards the destruction of the insects if the shoots are at once collected and burned, whilst light and air are admitted for the early formation and maturation of fruitful spurs. The removal of the shoots also better admits of the application of an insecticide, advantage being taken of a calm afternoon to promptly apply it where necessary. One thorough application is worth many partial dressings; and for destroying some insects, particularly the black aphid infesting Cherries, the brown infesting Peach trees, and the blue aphid that attacks Plums, it is necessary to thoroughly reach the pests, for unless the insects are in some way disturbed the liquid passes from them without having any effect whatever. Ensconced as the insects are under the young leaves, it is a good plan to rub the foliage with the fingers wetted repeatedly in the insecticide, following immediately with a heavy application from the garden engine. This should be followed in a day or two with a thorough cleansing with water, repeating as necessary; for frequent syringings in dry weather not only have a cleansing effect, but are beneficial to the foliage and advancing fruit.

Attend to nailing or tying-in the leading shoots, and nails and other obstructions likely to interfere with the development of the growing fruit should be removed. The fruit, especially Apricots, should have a final thinning if necessary. The long-continued dry weather has been favourable to the leaf-rolling caterpillars on fruit trees, and for this careful hand-picking is the most effectual remedy. Pyramid, bush, and espalier Apples, Pears, Plums, &c., may be stopped and have superfluous growths removed where necessary, not stopping closer than to three or four buds, as, if cut-in too hard, the trees will probably start into second growth without forming fruit buds or spurs. Where the fruit is thick lose no time in judiciously thinning the crop; a too heavy crop causes inferiority of the present fruit, and inevitably results in a future failure.

Bush fruits, such as Gooseberries, with Red and White Currants, should also have the shoots stopped when the growth is over-abundant, but the crops generally are so heavy that less growth than

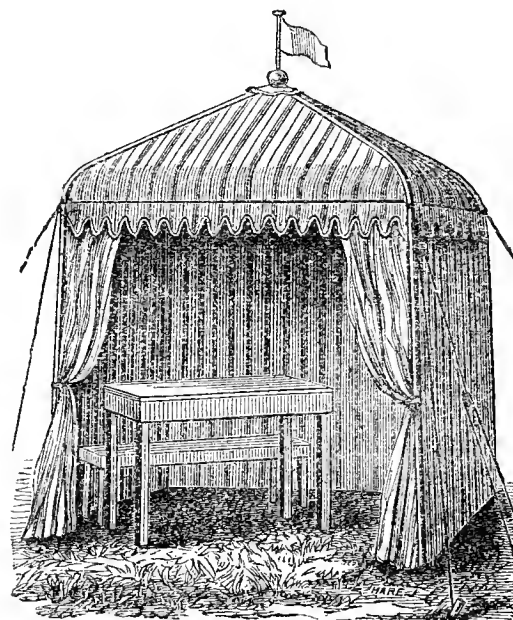


Fig. 116.—Cains' Portable Tent. (See page 514.)

usual has taken place this year. In order to secure fine fruit for dessert the crop should be thinned, so that when ripe the fruits hang clear of each other. There is no comparison between the ripe fruit from trees carrying a too heavy crop and those with a moderate one in point of quality. Strawberry plants should have been mulched some time since, and will now require to be carefully netted to protect the ripening fruit from birds. Mulching will have been found valuable where it has been resorted to, for fruit trees of all kinds, and especially Raspberries, which are suffering from lack of moisture, as also are fruit trees in restricted borders, which should when necessary be well watered.

#### FRUIT HOUSES.

*Pines.*—When the fruit commences colouring cease syringing the plants, and to improve both its colour and quality freer ventilation will be very beneficial, but not admitting air so as to reduce the temperature in the daytime below 80°, maintaining the night temperature at 70° to 75°; and although the quantity of moisture in the house is to be gradually diminished, the water at the roots must not be unduly restricted. Plants started into fruit in February will, as regards Queens and Providence, ripen this month; but Smooth Cayennes, Charlotte Rothschild, and similar kinds will not be ripe for three or four weeks, so that a good successional supply may be secured by those varieties, the period being still further extended by removing some of the fruiting plants to a cool airy house. Under ordinary circumstances fire heat should now be discontinued, except for providing the temperature at the roots at 80° to 90°, and to accelerate plants with fruit in an advanced condition of growth. For successional stock such heat will be no longer necessary, as the temperature by reason of the assistance which is obtained from the heated beds rarely falls below 65° at night, and this temperature is most suitable for the satisfactory development of the plants. As they will make growth rapidly care should be exercised in the management, especially in ventilation, so as to avoid an attenuated state



of growth. On fine mornings admit air at 75°, gradually increasing until the temperature reaches 85°, when the top and front lights should be opened as wide as is necessary, diminishing the ventilation in the afternoon by degrees to about 80°, at which close, giving the plants a light sprinkling with the syringe daily when sunny weather prevails. From the stock of suckers on the early section of fruiting plants a sufficient number to meet the demand should be taken off and started at once to afford stock for fruiting about this time next season and onwards, forming a supplementary batch to those which were started last March, treating them similarly; only if the soil be dry water must be afforded at once, and the shading will require to be more effectual.

*Cherry House.*—Abstention from syringing during the process of the fruit ripening and its preservation favours the increase of red spider; therefore, so soon as all the Cherries are gathered no effort should be spared to eradicate the pest by means of syringing twice a day. The roof lights may be removed altogether when the fruit is all gathered, but before doing so it is well to see that there are no black aphides, and if there be any destroy them by frequent fumigation. There must be no lack of moisture at the roots, as it is important the buds be well plumped for next season's fruiting, and unless the soil is moist they will not develop or mature properly.

*Peaches and Nectarines.*—In the earliest forced house the fruit is off the early varieties, also such kinds as Royal George, Grosse Mignonne, and Noblesse; and when this is effected the trees must be cleared of insects by employing the syringe freely, and if necessary an insecticide, as it is of the greatest importance that the foliage be kept clean and healthy to the last. There is a danger in early forced trees, especially those some years subjected to the process, of the buds becoming over-developed, so that they start into flower prematurely. This can only be remedied by admitting all the air possible; and where possible, as should always be the case with forced trees, the roof lights should be removed so as to afford the trees the benefit not only of rains but of night dews, which tend in a measure to compensate for the strain upon the trees in the earlier stages of growth. The wood not required for bearing next season should be cut out as well as that having borne fruit this season, unless it be wood necessary for the extension of the trees; and if there be any weak shoots thin them well out if there is a sufficiency of vigorous growth to replace them. In any case thin out so that every leaf can have full exposure to light and air. In the house started early in the year the fruit will, as regards the early varieties, be ripe, and the trees must be treated as above advised as regards syringing and cutting out this year's bearing wood, as well as thinning out where required. Spray should be kept well in hand by pinching, and on no account must the trees lack moisture at the roots.

As the fruit commences ripening in succession houses cease syringing, but maintain a moderate degree of moisture in the house by damping the border and paths occasionally, and affording, under favourable conditions, a free circulation of air. Fire heat may under most circumstances be dispensed with, except where it is desirable to accelerate the ripening of the crop. Suitable temperatures for ripening fruit are 60° to 65° at night, and 70° to 75° by day, with an advance to 80° or 85° from sun heat. Attend to former directions respecting succession and late houses in tying and regulating the shoots, and lose no opportunity of ventilating freely. Avoid overcrowding, and shorten or remove any leaves that shade the fruits, which will then colour well. Maintain the borders both inside and outside in a proper condition as to moisture, and mulch with about a couple of inches thickness of short manure.

#### PLANT HOUSES.

*Orchids.*—Examine the East Indian species, and any that have grown vigorously and filled their pots with roots should be shifted. If the roots are attached to the pots, instead of striving to remove them break the pot, allowing the pieces to remain attached to the roots. Do not afford large pots, as the majority of Orchids derive their support mainly from the atmosphere. Any not requiring potting will probably need a top-dressing of fresh sphagnum. Plants on decaying blocks should be placed on new blocks at once, so as to afford time for making new roots before the season of rest.

All East Indian Orchids and Dendrobiums syringe frequently, especially on fine days. Aerides, Phalænopsis, Saccolabiums, and Vandas should not be removed from their growing quarters, except for a few days, otherwise the plants as well as the flowers will suffer. Any plants with the growth approaching maturity should have a lessened supply of moisture, and be more exposed to light and air, so as to gradually induce a state of rest. Cypripediums require watering and syringing freely, and if the house is damped with liquid manure once or twice a week it will have an invigorating tendency. The Cattleya house will need only sufficient shade to prevent scorching, increasing the ventilation. In order to prolong the flowering period of Cattleyas and Lælias, remove them to a dry house. Miltonias that have their growths completed must be removed to a cool house, and only have sufficient water to prevent the bulbs shrivelling. Thrips are very troublesome at this season of the year; the houses should be frequently fumigated, as this insect is not easily killed even in its young state. Do not allow water to remain for days together in the base of the young shoots, especially in cool houses, or they will be injured, and in many instances decay.

*Stove.*—The sun having now attained its maximum power, fire heat can be dispensed with if the weather is hot; but if necessary the fires must be continued to prevent the temperature falling below 65° in the morning, and to maintain it at 70° to 75° by day. Insects increase rapidly at this season, and unless prompt means are taken for their destruction they do irreparable mischief, both disfiguring the plants now and injuring them for the year to come.

## THE BEE-KEEPER.

### A SEARCH FOR APIS DORSATA.

[EXTRACT from a letter by Frank Benton, from the *Bienenzeitung*, communicated by Alfred Neighbour.]

"Batavia, 16th March, 1881.

"You have no doubt been anxiously waiting to hear from me. I wish I were able to send you some news of a more satisfactory character to-day, but . . . I can hardly describe to you what exertion and trouble I have been obliged to go through, and how much I have travelled by land and sea in order to discover the whereabouts of this wonderful insect of the East Indies. I am now about leaving Java without having seen a single specimen of these bees. I did not succeed in meeting with any during my five-weeks stay here, though I looked for them wherever I considered it possible to discover them—in the interior of the island, on the high mountains, in the highlands, and in the plains—in fact, in every place where trees were to be found. I have spoken to many of the natives who knew something of these bees, although few had ever seen them; but I did not meet with a single European who had ever seen *Apis dorsata* in Java. I went to West Java, and thence into the interior of the island, whence I returned to Batavia. I took the steamer to the eastern ports of the island, and thence made excursions into the country. At times I was accompanied in my search for these bees by as many as ten men, all natives of the island, whose usual occupation was to search for wild bees in order to deprive them of their honey and wax. All these men I paid well, and they in return did their best to find these bees. I offered to give a sovereign to the man who would show me the first colony, and, of course, everyone was anxious to earn this money, a sovereign being looked upon as a large sum by the common people of the island. I also agreed to make the discoverer of the second colony a present of half-a-sovereign in addition to his pay, but all to no purpose. I was not even fortunate enough to find a single bee of the *dorsata*.

"My present plan is to return *via* Ceylon, and in case I do not succeed in obtaining a number of colonies of *Apis dorsata* there to proceed by steamer to Calcutta or Bombay. I am convinced these bees are to be found in Ceylon, where I learnt on the evening of my departure the whereabouts of the *dorsata*, but I do not know in what quantities they are to be obtained there. I took a number of Cyprian and Palestine bees with me, on which a good deal of my time was spent. Several colonies were left in Ceylon, and in the beginning of February I arrived at Batavia with ten stocks of Cyprian and Palestine bees. These were sold to the Government, and are now in the grounds of the School of Agriculture in Buitenzorg, where they are doing well. They have been in my charge till now, and will in future be attended to by one of the masters of the school.

"Mr. Bykens, who took out some colonies of bees to Java for the Dutch Government, has returned to Holland. The few stocks which were alive when they reached Java died soon after. Mr. Bykens



started with twenty-eight colonies, five of which only survived the voyage to Java, and these were in a very weak state. Although he spent nearly three years in Buitenzorg he took no steps whatever to discover *Apis dorsata*. His first attempt, though a most expensive one, has turned out a complete failure; the bees were brought all the way from Holland, while they might have been obtained equally well much nearer Java. Jaffa, which is only twelve hours' voyage from Port Said, would have supplied them. It was further unnecessary to have a separate cabin of 10 feet square for the bees, as they would have been quite as well on deck under cover of a sail, which would have saved 250*fl.* In addition to the cabin a certain quantity of ice was used daily to keep the colonies cool—a proceeding which, besides being expensive, was absolutely injurious to the bees, as it rendered the hives damp, and caused dysentery among the population. During the whole voyage the bees had only one opportunity, at Port Said, of leaving the hive; it would have been much better to have sent them *via* Ceylon, and to have allowed them to remain there for a time.

"It is almost impossible to get an interpreter on the island of Java, and I therefore set to work to learn Malay enough for my purpose; in the meantime the Director of the Department of Public Instruction has placed at my disposal the services of a half-caste Malay who speaks a little Dutch; the Malay language, however, is so easy that I was soon able to get on.

"In the Singapore Museum I saw two combs of *Apis dorsata*; one was 2 feet in length and width, the other 3½ feet, and the parts which had been used for breeding were 1½ inch thick. A square inch contains about twenty cells, from which we may conclude that *Apis dorsata* is seven-eighths of an inch long, and is a comparatively more slender bee than ours. The two combs were still attached to pieces of the branches of the trees, from which they had been suspended in a perpendicular direction. Many credible persons who have seen *Apis dorsata* in the forests confirm the opinion I have always held, that the position of the combs which these bees construct is perpendicular and not horizontal, as maintained by Mr. Dathe and others (see 'Dathe's Directions for Breeding Foreign Races of Bees,' pages 4 to 6).

"It is my firm belief that it is possible to domesticate *Apis dorsata*, and that this bee will prove a valuable acquisition.

"The reports of the quantities of wax and honey said to have been obtained from *Apis dorsata* are simply marvellous. You will hardly credit the statement that thirty natives were laden with honey and wax taken from the bees on one tree, and yet its correctness is vouched for by a trustworthy person who had seen these bee-hunters himself. From Bombay, Calcutta, Bengal, and Timor large quantities of wax are exported to other parts of the East Indies, chiefly to Java, where, according to reliable information, the consumption of wax amounts in value to about 2,000,000 rupees annually. It is chiefly used for polishing furniture and in dyeing the textile fabrics of the natives, the wax being spread over certain portions of the articles, while the unprotected parts are acted on by the dye.

"I start for Singapore to-morrow, and after a short stay there I shall proceed to Ceylon.\*

"Yours truly,  
" (Signed) FRANK BENTON."

The above letter is a valuable one as regards the history of bee-keeping. It affirms that Mr. Benton introduced *Apis mellifica* not only into Ceylon but also in Java, and it further states that Mr. Bykens' attempt has proved a failure.

*Trieste, 20th April, 1881.* (Signed) A. SCHRÖDER, JUN.

## HOW TO MAKE MOST OF A STOCK IN A STRAW SKEP.

In a former article to this Journal I mentioned a plan of stocking bar-frame hives from skeps, further details of which have been so frequently solicited that I take this opportunity of describing the practice in full. We are supposed to have a good stock in a skep or box which we desire in the simplest way to utilise mainly for increase, such increase to be in the form of bar-frame stocks. Of course any number of stocks may be similarly treated, but for simplicity we shall only take the case of one.

During the spring months it may be supposed to have been fed and attended to so as to encourage early breeding, and that it is now in a crowded state. A bar-frame hive—a mere box with frames and floorboard will do temporarily—is prepared thus:—Five or six of the frames are filled in the usual manner with comb foundation and arranged at proper distances in the centre of the hive. Close-fitting division boards enclose the space these occupy, outside which either empty or sheeted frames are in-

\* *Apis dorsata* attaches its combs perpendicularly to the highest branches of trees and against projecting rocks, and it takes no trouble to conceal them. Near the coast and in the plains *Apis dorsata* is never seen on the wing; it is only to be met with inland at a distance of some miles from the coast, where it settles in highland forests only, and at an elevation of about 1600 metres (5250 feet). It seems to me as if Mr. Benton had searched for the *dorsata* in the forests of the plains and too near the coast. In highland forests only are colonies of *Apis dorsata* to be found in considerable number, like the nests of hornets in our own country.  
(Signed) VOGEL.

serted merely to support the quilt in the meantime. For a quilt a square of any light cloth is taken the size of the hive top, and a larger square of waterproof material, such as oiled calico or enamelled cloth. Out of the centre of both a 6-inch circular hole is cut, after which they are put in position, the outer waterproof covering being tacked over the edges of the hive so as to throw off rain. The hive thus prepared is placed on the stool from which the skep has just been lifted, and the latter, after a whiff of smoke, is lifted from its floorboard and set over the frames. The old entrance is at once closed, and the floorboard with its adhering bees set sloping against the new entrance. The latter should be contracted to 2 inches or so, which will soon raise the temperature inside sufficiently to compel the bees to spread themselves downwards on the sheets of foundation. If an old sack be hung over the skep for a few days before this operation, and at once similarly hung over both the skep and its nadir, the bees will not be puzzled with the new entrance. This is the first step in the operation. Meanwhile let us note its advantages. Unless swarming were actually imminent, and in most cases even although it were, it will be averted for the time being. The superabundant population, instead of clustering idly about the entrance, is set to the useful work of drawing out the cells on the sheets of foundation—a work no way exhaustive of their energy; and a set of combs are ensured of almost perfect quality, for they are drawn out before there is any excessive heat or weight of bees to sag or curl them.

The bee-keeper must now prepare for the second stage of the operation—viz., dividing the twin stock thus formed. To make the most of his opportunity he must in some way or other get possession of a second fertile queen. No better opportunity can be found of introducing an imported Ligurian if such can be obtained. A week or longer may elapse before the crowded state of the doorway gives indication that the lower hive space is fully occupied. When this is the case the hive is gently removed to its old floorboard in a new location. The new combs are then lifted out and examined to ascertain the presence or absence of the queen. The presence of eggs and larvæ is presumptive evidence of her being on the new combs, but no doubt must be left on the subject. If neither eggs nor grubs are seen it is evidence that the stock is not ready for division, and the skep should be replaced for a few days; but if these are found in some quantity it is quite safe to make the division. The queen then must be found. If not on the new combs, and it is desired to finish the operation at once, the bees must be driven from the skep, and if open driving be practised the queen will generally be found within five or ten minutes. Taking her gently by the wings let her go under the quilt of the frame hive. Replace the eut quilts by a whole one, and cover with some sort of roof. The driven bees should all be returned to the skep after settling it in its new location, and the strange queen caged for twenty-four hours under the feed hole in the top. On no account should the strange queen be given to the bees on the old stand, Mr. Cheshire's advice on page 320 notwithstanding. I never knew a queen to be molested when introduced in the way I describe, but I have seen so many instances of failure by his method that I have come to regard success by it as the exception rather than the rule. The stock on the old stand is made up largely of old bees of the warrior class, which are always suspicious of a strange queen and generally ball her. She may be liberated after being caged twenty-four hours and is apparently received with joy, but a few hours after she is found to be again balled. I have known this caging and balling go on daily for eight days. The reason is obvious. For nearly a week bees from the removed stock will daily find their way back to the old stand. Some keen instinct informs them that the queen there found is not the one they parted with a few minutes before, and a single hostile act—may be the smell of ejected poison—seems to affect the whole stock, so that the balling is repeated. But when introduced into the removed hive, especially if driving has had to be resorted to, it will be found that she is generally accepted without any suspicion, and once accepted she may be regarded as safe from any further attack. These remarks hold true of all methods of artificial swarming when a strange queen has to be introduced.

But to return to our stocks. More frames must be added to the new stock as fast as the bees can cover them, and food given if the weather is unpropitious. The skep should be left on its floorboard to recover itself for a few days, and be supplied with sweetened water to make up for the loss of its old water-carriers. So soon as it begins again to get crowded the whole operation is to be repeated. It may be regarded as good practice in an average season to get two bar-frame hives thus filled, and have a strong skep stock left; but I have known four strong new stocks thus formed and a large quantity of honey in supers taken from the earlier of these.

If it be desired to abolish the skep no queen should be given to it at the last division. Three weeks after all the bees may be driven from it to form a fed-up stock, and its contents taken for the honey. Here again I would venture a caution about queens. Twenty-one days after an artificial swarm or division, such as I have described, there ought to be a young queen in the skep. Until the combs are cut out we cannot tell whether she is fertilised or not. She may be, even though no eggs have yet been laid. It is wise, however, to arrange matters beforehand on the understanding that at the date of driving she is still unfertile. If no precaution be taken she may come forth on her love-search, as she has probably done for several days previous. Not marking her location as she did at first, she returns to look for her skep, but no skep is there—only a box, like other boxes beside it. Little wonder if she enters another skep, if such there be, or a neighbouring bar-frame hive, and is killed. To guard against this the skep should be concealed by a sack or other covering for several days before the transfer of the bees to the new hive, over which the same covering may be similarly arranged, and thus the old appearance of things preserved.—WILLIAM RAITT, *Blairgowrie*.

#### TRADE CATALOGUE RECEIVED.

Benjamin Edgington, 2, Duke Street, London Bridge.—*Illustrated Catalogue of Marquees, Tents, &c.*



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**The Manchester Show (W. J. M.).**—The Exhibition to which you refer opens on August 24th and continues for four days. It will be well worth a visit.

**Training Fruit Trees (Cordon).**—We shall shortly publish some notes on cordon training which we think will meet your requirements. There is no book specially devoted to the subject you name.

**Strawberries (J. E.).**—The fruit of Cockseomb is large, ovate, and sometimes cockscomb shaped; skin pale scarlet; seeds prominent; flesh white with a rosy tinge. Flavour good. Growth of plant free, yet not markedly spreading. The fruit of La Con-tante is large, conical, and regularly formed; seeds not deeply embedded; skin bright crimson; flesh white tinged with rose; flavour sprightly and rich. The plant is of compact habit, and does not produce runners so freely as some others.

**Larvæ on Grass (Pendle).**—Though it is impossible to decide positively from the specimens sent (and which are not pupæ, but larvæ shrivelled from the attacks of some parasite), the species occurring in such profusion appears to be the Antler Moth (*Chareas graminis*). Since the time of Linnaeus it has been occasionally noticed as injurious to grass lands, though more frequently seen in the moth stage during August than in its larval condition, since it is more or less subterranean during the period of growth.

**The Cucumber Disease (W. W., St. Albans).**—The form of the disease that has attacked your plants is we believe incurable, and probably the only mode to prevent a similar calamity in future will be by thoroughly cleansing and disinfecting the house and obtaining soil from another source. The Cucumber-root disease is illustrated on page 34 of this Journal, the issue of January 4th, 1875, which can be had in return for 3½d. in stamps, sent to the publisher asking him to forward No. 720. The disease as attacking the leaves and fruit is referred to in Nos. 524, 526, 529, 530, 532, 534, and 536. These numbers, or any of them, can be had at the price above quoted, 3½d. each.

**Cauliflowers Clubbed (A. S. M.).**—Letters arriving on Wednesday morning can only be answered in the briefest possible terms. So far as we understand your case the plants are beyond remedy. You might try solutions of paraffin from a quarter of an ounce of the oil to a gallon of water to such stronger doses as the plants will stand, and let us know the results. You may as well kill a few with paraffin as let them be killed by the maggot.

**Vine Leaves Injured (H. Lewis).**—We fear your Vines are attacked with the clay-coloured Vine weevil, *Curculio picipis*, which is highly destructive. It feeds on the tips of the young shoots at night, and as the leaves expand they appear as if torn and perforated. We know of no better mode of securing the beetles than spreading a sheet under the Vines at night and shaking them, or jerking the laterals sharply to displace the pest. The work, however, must be done quickly yet quietly, for the insects often fall to the ground when they are disturbed and a light approaches; and on the other hand they sometimes cling to the stems with great tenacity. If this proves to be the enemy you must tho-

roughly cleanse the Vines and house in the winter, removing the surface soil from the border, if you have such inside, and adopt every means of eradicating the pest.

**Chionodoxa Lueillæ (H. S.).**—It is a beautiful hardy bulbous plant introduced by Mr. Maw from Asia Minor a few years ago. We have not had experience as to its "ready multiplication," but should think that the bulbs would increase freely in suitable soil. You will find an illustration and full description of this plant in our issue of March 31st of the present year. If you do not possess that number it can be had from the publisher in return for 3½d. in postage stamps. The abnormal growth of your Cabbage leaf is singular, but not very unusual. We have seen very similar examples, but the cause of their production is unknown.

**Insects on Vines (G. P.).**—Your Vines are attacked with the Vine weevil, which is referred in a reply to another correspondent. It is highly destructive, and a sedulous search should be made by night as well as by day for the weevils, which must be promptly destroyed. When the Vines are at rest the rods must be well scrubbed with hot soapy water, all the woodwork of the house being washed, all the surface soil removed from the border and fresh added, all plants in the house being at the same time cleansed and repotted or top-dressed, and thus you may succeed in eradicating a dangerous enemy.

**Peach Trees Unsatisfactory (W.).**—The condition of your trees denotes some serious error in culture, but where the precise mistake is no one can tell without being acquainted with the character of the soil and trees, and the treatment to which they have been subjected. The growths may have been much overcrowded in summer, or infested with red spider or other insects; or, what is very likely, the border has not had nearly sufficient water, and the roots are in a torpid state. Examine the border at a depth of 2 feet, and probably you will find it too dry there; if not, the soil is too poor, and the roots should be raised and placed in better compost, and the surface be thickly covered with rich manure. Nearly all failures in Peach culture under glass arise from overcrowding the growths in summer, and overdryness of the border at all seasons of the year. The cause of your failure ought not to be difficult to determine, and the remedy may then be easily applied.

**Cocoa-nut Fibre Refuse (M. J. B.).**—We have not the slightest idea whether you can obtain what you require in Wales or the towns adjacent. Possibly it might be worth your while inquiring at Bristol; still, where there are only small quantities of the refuse for disposal the price is much greater than in the larger cocoa-nut mat and brush manufactories. Both the yellow and copper-coloured forms of the Austrian Briar are included in the catalogues of Messrs. Wm. Paul of Waltham Cross; George Paul, Cheshunt; Cranston, Hereford; Veitch, Chelsea; Bunyard, Maidstone; Laing, Forest Hill; and possibly in those of other Rose-growing nurserymen, which implies that this bright old species is "yet in the trade."

**Plum Trees Diseased (W. B.).**—The precise cause of the condition of trees affected similarly to those from which you send sprays is not known. The appearance, however, is an expression of debility, consequent probably on the roots having penetrated subsoil deficient in the food necessary for maintaining the health of the trees. Had the roots been kept in a healthy active state near the surface by suitable top-dressing, the trees in all probability would not be in their present unsatisfactory state.

**Grapes not Ripening (J. H., Old Subscriber).**—Without knowing some thing of the condition of your Vines, their age, character as to vigour or the reverse, and weight of the crop, it is not easy to answer your question; but this we can say, that if they are in good health and not overcropped the fruit will ripen. The maturing of the wood will not arrest the ripening process, but will aid it. The long and cold spring has retarded the swelling of the fruit considerably in all gardens, and Grapes are generally later than usual this year, just as outdoor crops are later than during favourable seasons.

**Insects in Soil (R. C.).**—The most important word in your letter appears to be "emites," and we are not sure whether you refer to mites or emmets (ants). If you mix half an ounce of paraffin with a gallon of water, agitating it violently so that the two become well incorporated, which is not easy to effect, and sprinkle the soil where the ants or mites abound, it will, we think, drive them away and not injure the roots of the plants, although it will be a wise precaution not to sprinkle the stems.

**Rose Catalogue (Rosarian).**—We are unable to inform you when the National Rose Society's catalogue will be ready. You can no doubt obtain the information from one of the Honorary Secretaries of the Society, the Rev. H. H. D'Ombain, Westwell Vicarage, Ashford, Kent; or Edward Mawley, Esq., Addiscombe House, Croydon. The Society's Southern Show will be held at the Crystal Palace on July 2nd, and the Northern Exhibition at Sheffield on July 14th. You will find a list of other Rose Shows on page 329 of our issue of April 28th.

**Peach Trees not Thriving (Inquirer).**—Your case is very similar to that of another correspondent, and the reply and advice we have given to "W." will be equally suitable for yourself. We cannot say which of the following evils have operated the most strongly in rendering your trees unsatisfactory—insufficient or injudicious ventilation, insects with overcrowding of the growths in summer, or a deficiency of water at the roots; but from what you say we think the ventilation has been defective and the water insufficient. You can judge for yourself on the point of overcrowding, according to the rule which many years of experience have proved is a sound one—namely, the leaves of one shoot should not overlap those of the next.

**Gesneriaceae Plants Unhealthy (W. S. K.).**—The plants and leaves sent have no thrips on them, nor do we think the injury arises solely from insect attacks, nor indeed chiefly. We rather attribute it to something pernicious either in the soil or water, or both. Is there iron in the soil? Try a few plants in soil from a fresh source and use only rain water. We assume that the temperature of the house has been suitable for the plants, the atmosphere kept in a proper state, and shade afforded as needed. Errors in these respects would account for the unsatisfactory state of the plants.

**Caterpillars on Holly Shoots (Mr. Brierley).**—These are the caterpillars of a small moth in the genus *Spilonota*; several of which, nearly resembling each other in the larval stage, are very destructive to buds and young shoots. Some suggest the slow process of catching the moths during the summer before they deposit eggs. These are difficult to find, being minute, and resembling in colour the buds where they are generally placed to remain unhatched through the winter. We should try the effect of syringing the shrubs with a solution of paraffin at the strength of a wineglassful of the oil to 4 gallons of water, every alternate syringe being forcibly ejected into the pail and on the trees, otherwise the oil will not be well mixed. If soapsuds are used instead of water the dressing would be more effectual, but a sediment would be left on the leaves. Or perhaps a solution of hellebore would be efficacious,



2 ozs. of the powder being mixed into a creamy paste with a little hot water, adding a gallon of cold water, then applying with a syringe. We have seldom seen such a serious attack, and strong measures will be necessary to destroy the pest. Try the hellebore mixture first.

**Tomatoes during Winter** (*P. H. S.*).—Although the temperature you will be able to maintain during the winter will be somewhat low for Tomatoes, we still think you ought to be successful; but whether the crop will be more remunerative than Mignonette we cannot venture to decide. It is quite certain the demand for Tomatoes, which rapidly increases, is during the greater part of the year still in excess of the supply, though in all probability the best prices are obtained from April to August. Vick's Criterion is well adapted for fruiting in comparatively small pots, but we should prefer a larger-fruited and more saleable variety, such as Earley's Defiance or a good selection of the Large Red. July 1st is early to either strike cuttings or sow seed to secure a stock to plant early in October, as in this case the plants must experience a very undesirable check. Sow seed or strike cuttings (one plan being as good as the other) about the first week in August, grow the plants as sturdily as possible in the open as you propose, attending closely to their requirements, and taking care to house them before cold damp weather may be anticipated. The first bunch of bloom will have set by the time it is intended to plant. Your proposed after-treatment is generally correct. Further remarks on this subject will be published in the course of a few weeks, and in the meantime you cannot err by perusing Mr. Iggulden's "Manual on the Tomato," price 1s., or 1s. 1d. post free from this office. It is a very reliable work, and treats on Tomato culture for market purposes.

**Names of Plants** (*H. S.*).—1, *Dianthus arenarius*, the Sand Pink; 2, *Reseda undata* (can you send us a small plant?); 3, *Saxifraga ceratophylla*; 4, Specimen insufficient, perhaps *Sedum acre*; 5, *Sedum rupestre* (?). (*C. P. L.*).—We have repeatedly stated that not more than six specimens should be sent to be named at one time, but as you sent such good examples and well packed, which greatly facilitate the process of identification, we make an exception in your case and publish the names of them all. It is a pleasure to name good and fresh specimens, but the identification of crushed, imperfect, and withered sprays is more tedious and difficult than many imagine. 1 and 2, *Dactylis glomerata* (Rough Cocksfoot Grass), the former a very small example; 3, *Bromus sterilis* (Barren Broom Grass); 4, *Carex laevigata* (Smooth Sedge); 5, *Bromus mollis* (Soft Broom Grass); 6, *Arrhenatherum avenaceum* (Oat-like Soft Grass); 7, *Alopecurus pratensis* (Meadow Foxtail Grass); 8, *Trisetum flavescens* (Yellow Oat Grass); 9, *Festuca duriuscula* (Common Fescue Grass); 10, *Trisetum flavescens*; 11, *Anthoxanthum odoratum* (Sweet-scented Vernal Grass); 12, *Poa pratensis* (Common Meadow Grass); 13, *Lathyrus pratensis* (Heath Peasling or Meadow Vetchling); 14, *Chrysanthemum Leucanthemum* (White-flowered Ox-eye Daisy); 15, *Saxifraga rotundifolia* (Round-leaved Saxifrage). (*H. Dod.*).—1, *Pteris cretica albo-lineata*; 2, *P. longifolia*; 3, *Adiantum pubescens*; 4, *Pteris argyrea*. (*Clonmel.*).—The name of your plant is *Clematis Vitalba*, the Traveller's Joy. (*J. W.*).—*Cattleya guttata* Leopoldi. (*Rosa.*).—1 is *Phlox Nelsoni*; the Orchid is *Oncidium sphacelatum*, and the other specimen with white flowers is *Saxifraga ceratophylla*. (*W. M.*).—It resembles *Begonia Sutherlandi*. (*Stifford.*).—1, *Cheiranthus alpinus*; 4, *Asperula odorata*. The others were too withered to be recognisable. (*W. G. L., Bath.*).—The plant is *Thalictrum aquilegifolium*, a member of the natural order Ranunculaceae. (*A. M. B.*).—The specimen with purple flowers is *Viola cornuta*, the one with yellow flowers is *Alyssum saxatile*; but the small fragment of *Stonecrop* cannot be identified. (*S. B.*).—The large flower is *Cattleya Mossiae*, and the other is *Dendrobium crepidatum*. (*X., Yorkshire.*).—1, *Helianthemum ocellatum*; 2, *Aubrietia microstyla*; 3, *Gloularia trichosanthes*; 4, *Myosotis dissitiflora splendens*; 5, *Iberis Garrethiana*. (*W. K.*).—The Veronicas are—1, *V. gentianoides*; 2, *V. pulchella*; 3, *V. rupestris*; and 4, *V. pectinata*. (*R. N.*). There are many varieties of *Helianthemum*, but yours resembles one called Beauty.

**Supers and Prevention of Swarming** (*Rector*).—The method of treating the supers depends somewhat upon their material, but the principle applies to all that they should be protected by some good non-conductor of heat. If this be neglected, in chilly weather the bees will refuse them, while in the heat of a summer's sun they will be extremely likely to swarm and leave them. The junction between hive and super should also be as perfectly closed as possible, or the air escaping so cools the brood nest that a far larger number of brooding bees will be required in the hive below. The mischief of bees swarming with half-filled supers is of more common occurrence with skeps than with properly managed frame hives, for reasons which have been lately stated in our columns. With skeps, however, eeking seasonably done will almost invariably prevent swarming, the reason apparently being that bees always carefully avoid leaving a gap between their cluster and the entrance (except during the season when enemies are not abroad), and that should a swarm leave before the eke is filled the residue would be incapable of keeping up direct communication with their hive door. The eke being finished, so great an increase of space is given to the brood nest that its crowding is permanently prevented, and so the need of colonising disappears. Eeking, although it may augment the aggregate of honey, reduces the amount of that obtainable in supers, since it is a rule, the reason for which is obvious enough, that shallow hives give more surplus above them than deep hives.

**Supering and Driving Bees** (*A. J. Brown*).—It is not too late for supering. In driving place the hive on its crown, fixing it firmly, and inverting the other hive on the top so that the two hives are placed mouth to mouth. Closely bind round the junction of the hives with towels or other material to prevent the escape of the bees, then drum the lower hive until the bees leave it and enter the storey above. The common black bee is what you have sent a small specimen.

#### COVENT GARDEN MARKET.—JUNE 22.

BUSINESS remains without material alteration. The supply of Strawberries has increased considerably during the week, and the fruit is generally of good size and colour.

#### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Melons .....	each	3 6 to 5 0
Apricots.....	box	1 6 3 0	Nectarines.....	dozen	6 0 10 0
Cherries.....	½ lb.	1 6 2 0	Oranges.....	½ 100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches.....	dozen	14 0 20 0
Figs.....	dozen	6 0 9 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	dessert .....	dozen	0 0 0 0
Cobs.....	½ lb.	0 0 0 0	Pine Apples .....	½ lb.	1 0 2 0
Gooseberries .....	½ sieve	3 6 4 0	Strawberries .....	per lb.	0 6 2 0
Grapes .....	½ lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

#### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	2 0 5 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	1 6 2 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

#### AGRICULTURAL IMPLEMENTS AND MACHINERY.

(Continued from page 477.)

As our agricultural machinery and implements are manufactured with the object of saving labour we will refer to the advantage of the elevator or stacker. To lift by bodily force the hay or sheafed corn from off the waggon on to the rick is about the heaviest and most toilsome work done on the home farm; in fact, we find but few men at the present time capable, even if willing, to perform this work, as the strongest and most willing men have left the farmers' work in search of higher wages on public works in towns and on railways. This being the case, the farmers have no alternative but to resort to labour-saving machinery or pay for inefficient manual labour at a disadvantage. Upon the home farm, if it is to be well conducted, the elevator must be employed. They are now made capable of being attached to the thrashing machine, and then elevating the straw as fast as thrashed on to a rick at any height up to 25 feet, and delivered from the thrasher at any angle. They are, however, capable of being used by horse gear, so that in building either hay or corn stacks they are available in the fields wherever the ricks may be required.

We must also refer to Clayton & Shuttleworth's portable steam-power chaff-cutter, which as used in connection with a thrashing machine has met a recognised want in some districts where large quantities of straw are used as chaff for the feeding of horses, cattle, or milch cows. As the machine we have alluded to is capable of cutting the straw as it is thrashed by an ordinary travelling machine it is very convenient, for it not only cuts the chaff but riddles out the cavings or imperfectly cut straw and all impurities, and delivers the chaff into sacks ready for removal. The chaff can also be cut of any required length for various purposes. The advantage of cutting straw into chaff at the time of thrashing is obvious, for if the corn is fit to thrash the straw must be also in condition for chaffing and storing for future use. This can be conveniently done upon most farms where there is a barn, for the chaff may be stored and kept in good condition, and used only as required. The best single-horse gear that we have seen is made by Reeves & Son, and is made expressly for working elevators, small chaff-cutters, food-preparing machines, &c., and is fitted with separate intermediate motion, which is enclosed so as to prevent anything being entangled in the gearing.

We must now refer to field rollers. It is noticeable that the heavy serrated roller or clod-crusher, made many years ago by Croskill & Co., is almost if not entirely gone out of use. The



reason for this is not far to seek. It consists chiefly of two important items. First, that smooth rollers are preferred, as they crush the clods into dust, whereas the serrated surface only breaks them into small angular pieces, yielding but little if any fine mould; the next is that practical farmers often do, and ought to, repudiate the policy or necessity of having any large clods to be broken, preferring that the labour required for reducing the soil into a fine state should be effected as fast as the land is ploughed, and reduced before it has time to become hardened. To prove the action of heavy smooth cylinder rollers, some fifty years ago we took a roller (which cost thirty-six guineas) into our farming stock, and it required four really good and powerful animals to work it on very rough land; but the action left the land perfectly fine both on the surface and under, for when two clods pressed against each other they were broken into dust, and we have often found that it would be impossible in some dry seasons to reduce really heavy clay land in a rough and cloddy state into tilth by any other means. Smooth rollers are most effective and valuable for park and pasture lands. Messrs. Woolnough & Co. and other makers have them up to the size of 36 inches in diameter of the cylinder, the draught of which requires four good horses.

We now desire to show the use and value of the ordinary two or three-ringed presser. The use of the three-ringed implement is the following of three ploughs; and as it is only animal labour to which we are referring, two full-sized horses, such as we have always recommended for farm work, if in good condition will be equal to the draught; but in the case of a two-ringed implement it will require two small horses or oxen, which shows the policy of using the presser of three rings. The home farmer will find this a most important implement, for all lea ground should be pressed at the time of ploughing in order to secure a firm and solid seed bed for either Wheat or Oats, to both of which crops it is necessary for their healthy growth. Speaking of Wheat, in the winter of 1878 and 1879 that which was sown after the presser was almost the only crop which maintained a full plant, for the seed being buried deeply it evaded the action of the severe frost. In the same manner Oats or drege, when sown after the presser, obtains a holding upon the firm subsoil at once, and thus to a great extent avoids injury by wireworm, grub, &c. We must also look to the finishing work of the tillage, for lea ground never works off fine and free from tufts of grass, roots, &c., unless the land has been pressed, nor is there any roller efficient in this work equal to the presser.

Ring rollers—such as those called the Cambridge, named after the original maker—are also capital implements as made by Messrs. Howard. These in ordinary work are better than smooth cylinder implements, because they can be used for nearly every purpose on the farm, grass land included; but they are especially necessary in the seeding of Clover and Grass seeds, for after the land is made fine on the surface, whether it is on Wheat land or spring corn, if the seeds are sown after the fluted roller the little firm channels made by the rings take the seeds so well that they become perfectly buried by one tine of the ordinary chain harrow, nor is there any other mode of seeding for Clovers and permanent pasture to our mind so perfect as that obtained by the use of the ring or fluted implement.

We have now to notice some useful articles required on the home farm, such as sheep troughs, cow cribs, cattle troughs, and corn bins, all of which are best when made of iron. It is quite common to use wooden articles instead of iron, but being constantly in use and exposed to all weather they soon wear out. The best galvanised iron sheep troughs for use in the open field are about 8 or 9 feet long, with two or four wheels, with a rod at the top to prevent the sheep treading in them; the lip or edge of these troughs are turned inwards, thus preventing the sheep from routing out the food. They are not covered except when required for the feeding of lambs, for when sheep are fed they should never have more food than they can eat before leaving the troughs; but not so with lambs, which should never see an empty trough, but always have food to eat, especially of corn and cake. In that case to prevent waste the troughs should be covered on the top and on one side. Iron cow cribs are not only convenient for feeding cattle and colts in the yards, but are very enduring; at the same time they are not easily turned over by the animals. Iron corn bins are to a certain extent a necessity, as are also the wrought iron cattle troughs, to supply water at all times in the stock yards.

#### WORK ON THE HOME FARM.

*Horse Labour.*—This will be conducted according to the state of the weather. On some light gravel or sandy land Swedes will be sown after this time in order that they may be vigorous in growth during the autumn until frost comes, these late-sown roots being the only ones which are likely to stand during severe weather in the winter months. In preparing for Turnips after green crops, if the land is

foul with Couch, it is best not to clean-plough the land but rather plough, and then scarify across the rafter so that no Couch may be buried but kept well on the surface, to be dealt with by the self-lifting drag and roller. After the Couch has been cleared off the land may then be clean-ploughed rather shallow, in order that any remaining Couch may be worked out and removed before drilling the seed. Sow first the Scotch yellow hybrid variety, unless the crop is required for early feeding and early clearance, to be followed by Wheat, for then the Red Mammoth Turnip is the best variety; for when sown as a second crop they not only grow very fast but retain their quality and feeding value until a late period if required to stand the winter. If the green crops have been fed off by sheep 3 cwt. of superphosphate per acre, with 20 bushels of ashes, will be a sufficient dressing for drilling with the seed. If, however, the green crops have been removed for horses or cattle in the boxes, then  $1\frac{1}{2}$  to 2 cwt. per acre of Peruvian guano should be added to the before-named dressing. Horse-hoeing the Mangolds and Carrot crops will still be going on. We hear of considerable deficiencies in the plant of Mangold this year, but we cannot advise ploughing and resowing if Mangolds are required on the home farm, as they generally are; but we should prefer to plant Cabbage, Kohl Rabi, and Thousand-headed Kale. But the setting should be done at the back of the spade, as it moves the ground nicely round the plants, and also lets the plants down into the moist land—an important point, especially if the weather should be very hot and dry. In the sandy soils there will often be some Couch left, and which will show up at the time of horse-hoeing between the rows of Mangold, Turnips, and Cabbages. In this case we send women to take up the bunches of grass before the horse-hoes, and the Couch is eradicated for that season.

*Hand Labour.*—The men will be engaged in hand-hoeing and singling the root crops. In the latter work the women should assist, also in attending upon the hay when the weather is fine. After the ricks are made they should be tucked into shape and topped with straw, ready for thatching at the first opportunity if they are doing well and not likely to overheat. Hoeing Carrots must be continued between the lines. We prefer pulling them for the purpose of singling instead of using the hoe, because if the plants are set out singly as soon as the hoe can do it, then the crop is very liable to become a prey to the brown grub, for they grow slowly after being hoed out early. On the other hand, if they are allowed to become too large for the grub to eat before hoeing, a large bulk of food will be destroyed by the hoe to no purpose, whereas if they are hand-pulled the roots furnish a large amount of valuable food. We have obtained in this way from 7 tons to 10 tons per acre available as food for cattle, and if of the red intermediate sort there is a ready sale for them in towns as food for the people. The advantages, therefore, of pulling over hoeing are, first, you ensure a plant; then, if they are not pulled for thinning until the roots are the size of the finger or thumb, the ground is opened and loosened close to the standard plants, enabling them to swell very quickly. Again, the pulled roots are, if not sold, valuable food for all kinds of cattle, including horses and pigs. The work of planting Cabbage, Kohl Rabi, and Kale, should be continued, and upon land lately cleared of green fodder crops we prefer planting Cabbage plants to sowing with Turnips, for there is an amount of uncertainty connected with seeding which is not to be expected if planting any of the Cabbage tribe is properly done with the spade, and the land is made rich enough and kind enough by dung and good tillage to produce them in abundance, and especially we should provide abundance of plants for making out deficiencies and loss of plant amongst any of the root crops. We must not forget the value of Broccoli of the early sorts which come fit to sell from November to Christmas, as these pay remarkably well, and may be said to be a valuable accessory to our ordinary root crops, as they can be sold in towns and sent by rail to any part of the kingdom in the same manner that we get them packed and sent over from France and other parts abroad. They require, however, to be grown in a sheltered position and manured with guano, superphosphate, or nitrate of soda, and will pay well for it in some districts, the stumps being used as cattle food passed through the cutter and mixed with cake or bean meal. In this way we have fattened our bullocks on various occasions with as much profit as with Swedish Turnips prepared and given in the same manner.

*Live Stock.*—The cattle in the boxes are now getting forward for sale or for exhibition, and may have Clover, Saintfoin, Lucerne, Vetches, &c., with an ample allowance of cake and bean meal; and it will pay better on an average of seasons for cutting Clover twice or thrice than running the risk of making it into hay. We never make so good manure or make beef faster than when cattle are fed as above stated. Sheep should now have all been shorn of their wool, and all the lambs have been weaned also by this time. Weaning the lambs early tells in their favour as well as in advantage to the ewes, especially if the latter are intended for the butcher at the earliest period.

#### VARIETIES.

*STOCK-FEEDING.*—It is claimed by some feeders of stock that 100 lbs. of cornmeal and 100 lbs. of bran mixed will give a greater gain in flesh than 200 lbs. of meal. Meal and bran mixed is a better food than meal alone. Bran contains a larger per-centage of phos-

phoric acid, potash, and nitrogen than Indian meal, while the latter contains more oil, sugar, and starch than the former.

— **AMERICAN WHEAT.**—The "Prairie Farmer" states there was recently quite a flurry in Wheat in the Chicago market, the price going up 2 cents, closing at 1.10 dol. This is an advance of 5 cents in one week, and 8 cents since last winter. The causes are the over-estimate of last year's crop, a deficiency now in store there of about four million bushels as compared with last season, the large export demand, and the injury done the coming crop by the severe winter and the chinch bug. It is an open secret, too, that large quantities of the cash Wheat and options are controlled by speculators.

— **CRUSHED BONES AS POULTRY FOOD.**—Some persons are in the habit of burning the bones before giving them to poultry. It is true that after being burnt they are much easier broken up; but the raw bones contain a large amount of gelatine, which is a most excellent food for making hens lay, and gelatine also contains a large amount of nitrogen, which is driven into the atmosphere by the heat. When the bones are fed raw this nitrogen is retained, and having done duty as food for the poultry and constituting part of their systems, it is still capable of again doing duty as a fertiliser, but once becoming free nitrogen in the atmosphere it is not so easy a matter to combine it in such a manner that it shall be rendered available as plant food. In pounding raw bone it is not necessary to make it so fine as people suppose, for a hen will swallow a much larger piece than many would think possible, and when once in her crop it will be digested and properly economised. —(*American Cultivator.*)

— **THE BIRMINGHAM DAIRY SHOW.**—The Exhibition in all respects, with the exception of the attendance, proved an unqualified success. To what extent the receipts will fall short of the necessarily heavy expenditure has not yet been ascertained, and the Committee are consequently not aware to what extent the guarantee fund, which was previously subscribed, will have to be drawn upon. The financial result, though somewhat disappointing, is not surprising when the stagnation of trade and the severe depression under which the agricultural interest is labouring are considered. In a business point of view the exhibitors had no reason to complain. Such of the cattle as were for sale found purchasers at good prices, and the whole of the cheese and butter were readily disposed of.—(*Midland Counties Herald.*)

## POULTRY AND PIGEONS

### BANTAM CHICKENS.

WE have often written about the management of chickens in general, of our ways of tiding over the various crises in their existence, and especially of how to bring them to such a size as shall make them successful in the show pen and admirable on the table. Our subjects are usually suggested by what is going on in our own yards. The experiences and wants of one fancier are likely to be those of another, and so we generally follow up our routine by writing hints for fellow fanciers. The first object, as we have said, with most fanciers is to get size in their chickens; not so with all. Bantams, the beauty of which is their smallness, require a somewhat different treatment. They are seldom hatched in the early spring on account of their delicacy, and because Bantam hens are not usually early layers, and the present is a particularly good time for their appearance. We will, therefore, now give briefly a few results of our Bantam experience.

1. From the extraordinary activity of the young chicks it is sometimes said that they are very hardy. This is by no means the case speaking generally. Game Bantams, it is true, if not in-bred are hardy enough, but almost all strains of Bantams have been much in-bred to keep them small; they also feather all over with extraordinary rapidity. The result is, that the first month of their existence is a season of delicacy, and care they must have. There is with them, as with young Turkeys, a crisis, and when this is once passed, they rapidly harden. They are extremely susceptible of damp; their coops must therefore be thoroughly watertight with projecting weather-boards in front to keep out driving rains. We prefer two-boarded floors with removeable drawers

for them, unless the coop can be placed altogether in a dry shed; this, perhaps, is the best plan. A damp floor soon brings on diarrhoea in the smaller chickens; they refuse food and pine away.

2. The system of feeding young Bantams differs much from that suitable for larger breeds. Smallness being a desideratum, oatmeal, milk, and such bone-making diet must be avoided. A mistake, however, is often made in starving Bantams; this they will not bear in their early days, the rapid growth of their feathers requires constant nourishment. When, however, they are half grown this must cease; henceforth no fowls require so little food. Multitudes of adult Bantams are killed by overfeeding. For the first fortnight bread crumbs and chopped hard-boiled eggs will be found good, and plenty of boiled rice. At this time of year all chickens are the better for plenty of rice, and specially Bantams. Six meals a day not too many for them. Groats will succeed the egg. Oats in this hard form does not encourage quick growth so much as in the form of meal.

3. In the case of large fowls our object is to keep them chicken-like as long as possible, in that of Bantams to bring them to the earliest possible maturity. From the day of their hatching, therefore, till they are full grown they may have stimulants. For the first few weeks a little finely minced meat daily helps them on; no chickens show such an extraordinary craving for it. We have often seen little Bantams nearly tearing each other to pieces over a worm or bit of meat. Ants' eggs, too, are excellent where they can be got, and as the little things approach maturity some of the spiced foods, which we condemn for the large breeds, will come in usefully. It must not be forgotten then, though it is generally useless to take extra trouble over a specially backward or delicate chick in the case of the larger breeds—in fact, we generally advise the killing of all such—the little Bantam which continues a dwarf but yet exists, providing it has no real and infectious disease, may prove a veritable treasure from its diminutive size. As we have said of sickly Turkey poults, that as long as there is life there is hope, and that special attention will often save one apparently far gone, so it is with Bantams.

One more point is there of difference in Bantam régime. No trouble need be taken about separating the sexes as they grow up. The adult plumage, especially of the cocks, develops all the more rapidly when all run together. We have before now written of the difference between the breeds of Bantams which are of modern production and the really old breeds. In the case of the latter there is really little difficulty in keeping them down to small size; the former, having been reduced from large breeds, are ever apt to return to their natural size. It is to these that special care has to be given in their infancy, and we hope that our experience may be of some use in helping others to avoid some of the failures which we have from time to time suffered from.—C.

### PRACTICAL SCIENTIFIC BREEDING.

(Continued from page 500.)

#### MAKING NEW VARIETIES.

OUR American friends have more experience in the manufacture of new varieties than fanciers on this side of the Atlantic can lay claim to. Their efforts in this direction have been by no means wanting in success—witness the several varieties of Leghorns, the now-popular Plymouth Rocks, and the last new addition to the American standard the Java fowl. It is true that occasionally an English fancier makes an effort to strike out a new line; but, whatever may have been the case some twenty years ago, when the fancy was comparatively in its infancy here, there is no doubt that now-a-days the attempts made to bring forward new breeds of home manufacture do not meet with much encouragement. The outcry raised against the so-called Eymore Blacks exhibited at a recent Birmingham show is a case in point.

Notwithstanding this prejudice against manufactured breeds there is, we think, plenty of room for new varieties, especially from the utilitarian point of view. The breed has yet to be found which shall combine first-rate table qualities with an abundant supply of good-sized eggs and perfect adaptability to our English climate. The Houdan is perhaps nearest to the desired standard; but there are Houdans and Houdans, some being good in all the points mentioned, while others are just the opposite. The Dorking is essentially the table fowl of England; but then, except in rare cases, the supply of eggs is not abundant and the chickens are often difficult to rear. The Langshan claims to have hit the mark, but its feathered legs and strong infusion of Black Cochins blood are against it. The Spanish sub-varieties are all very well as layers, but have no claims to be considered first-rate table fowls, and the small size of the eggs of the Leghorn is an objection with many people. We might go in like manner through all

the well-known breeds, and point out the respects in which each falls short of the requirements of the poultry farmer; and, with the exception of some few enthusiasts who would uphold their own particular breed as being perfect against all comers, we think most practical men would agree with us that there is plenty of room for improvement.

From the point of view of the fancier there is also plenty of room for new varieties, provided they be distinct and sufficiently established not to betray the original elements from which they have been manufactured. It is probably on account of the premature way in which the results of English attempts to form new breeds have been brought forward that they have failed to attain anything like the success of imported specimens of manufacture. We have also a national prejudice in favour of being imposed upon; and just as we accept American bacon more readily when it is labelled "Best Limerick" and sold at a high figure than when it is truly described and priced accordingly, so we much prefer to be told that our new varieties of poultry are descended from birds imported from some unknown region rather than learn the truth as to the elements from which they were formed.

New varieties are manufactured in several ways. One of these, and that most largely resorted to, is to cross two or more known breeds until something like the type desired has been produced, and then by in-breeding and artificial selection endeavour to attain and perpetuate that type. This is work which requires much patience, as the tendency to throw back always comes largely into play in such cases. It is a good plan in making such experiments to start with two similar distantly related pairs of birds, and carry on the process of breeding from the progeny of each pair separately for some time, afterwards crossing them with each other when fresh blood is necessary. The chances of throwing back when fresh blood is introduced are thus much diminished, the fresh blood being of a similar type and produced in a similar way to the strain into which it is introduced.

It is by some such method as this that good laying and table qualities might be combined in one variety. At present the poultry farmer generally looks to first crosses for such results, but this method necessitates the keeping-up of a breeding stock of each of the varieties used for the production of the cross or the purchase of fresh birds each year, and has the additional disadvantage of being somewhat uncertain in its results. Precisely similar crosses do not always succeed equally well or produce similar results, while a strain bred for certain qualities can be relied on to reproduce them with reasonable certainty.

Another method adopted in the production of new varieties is to take advantage of some sport from a known variety, and by in-breeding to it and selection perpetuate the accidental type. Nature commits vagaries in the poultry yard and Pigeon loft just as in the garden, and such of these sports as are of beauty are worth the trouble of an attempt to perpetuate them. Such has been the origin of several of our white varieties which have been thrown from black parents, and cuckoo and slate-coloured birds have also in several cases originated in sports from black or white, though more frequently from crosses between black and white.

One more source of new varieties deserves a passing mention. When, amongst the miscellaneous and generally mongrel contents of a farmyard some type worthy of perpetuation seems to appear with more than ordinary frequency, an attempt may be made to fix it in the way already described. This is generally the most difficult case to deal with, as the diversity of the sources from which the points of the birds are derived renders it almost impossible to get any settled type reproduced.

No variety can be said to be established until the points for which it is bred are so fixed as to be reproduced with a fair amount of certainty. The poultry farmer must take care that he does not allow the pursuit of fancy points to lead him away from the objects he has mainly in view. For him these are of minor importance. Hardiness, early maturity, plenty of meat of good quality, with a small proportion of bones and offal and first-rate laying properties, are the points he should regard in his efforts at improvement. A variety which would reproduce these points with certainty, though hardly a new variety from a fancier's point of view, would be worthy all the trouble that could be expended upon its manufacture, and would amply repay its producer.

(To be continued.)

### CROSS-BRED FOWLS AT THE BIRMINGHAM DAIRY SHOW.

WE looked forward with some interest to seeing the classes for cross-bred poultry at Birmingham. We have written on the subject of crosses, and believe that much might be done by some real study

of their results to improve table poultry. Our expectations were hardly realised at Bingley Hall. The first class we came to was for trios of adult cross-bred fowls. There were four prizes, of £5 in all, and only six pens were entered. The pen which struck us as containing much the best fowls for the purpose was Lady Dartmouth's (No. 515), from a Cuckoo Dorking cock and Silver Poland hen. We have before advocated a Dorking-Poland cross, and much fancied these. They are small-boned, plump-breasted birds, and pretty too; Cuckoo in plumage with moderate crests. A class for three chickens of like kind and with the same valuable prizes followed, but there were only five entries. First went to Mr. Butler Smith, not correctly we thought, for his birds bore no trace of being cross-bred, but were apparently bad-bred Dark Dorkings; big enough it is true.

The open classes for the heaviest dozen of eggs were wonderfully filled with eggs of marvellous size. Though there were only two prizes in each class no less than forty-two entries of hens' eggs and twelve of Ducks' were made. Many exhibitors had sent double-yolked eggs, but the Judges very properly tried and left out any collections showing signs of being such. First went to the produce of Andalusians, and second to that of a Cochins and Dorking cross. In the class for Ducks' eggs Aylesburys carried off both the prizes. In the classes confined to Warwickshire tenant farmers and cottagers almost all the prizes, both for cross-bred fowls and for eggs, were carried off by Mr. Frederick Lythall of Offchurch near Leamington. Dressed poultry looked better than they usually do at such exhibitions. For pairs of chickens, judged irrespectively of weight, we were surprised to see first given to Brahmas, in preference to two very plump tempting-looking Dorkings from Mr. T. C. Burnell, priced at the modest sum of 4s., and of course sold. Two capons alone were entered for two prizes, of £1 and 10s. They were grand ones, however, sent by the Hon. Mrs. Colville.

Surely those interested in table poultry will remember against another year the great and liberal encouragement given at this Show to its production. We can only hope that the meagreness of the entries will not cause the prizes to be cut down at the show which we hope will take place next year.—C.

### OUR LETTER BOX.

**Roup (G. P.).**—We hardly think your birds have anything more than colds. Take care that they are comfortably housed and have a well-drained run. Do not allow them to be exposed to rain or wet under foot. Put a few drops of sulphuric acid and a few of nitric acid in the drinking water, adding a little sugar to take off the very bitter taste. Give bread and ale or some other stimulant. Should the symptoms increase, wash the nostrils, eyes, &c., with Labarraque's solution of chlorinated soda diluted with twice the quantity of water, and give one dose of castor oil followed by a copaiba capsule twice daily. The birds affected must be separated from the others or the disease will run through the yard. Use some disinfectant in the yards where the roup birds have been. Give your chickens sound meal, and feed regularly, leaving no food lying about. Pay especial regard to cleanliness.

**Crossing Rabbits (J. B.).**—You may reasonably expect to have at least some good animals from the cross you propose. We are not able to state where you can obtain a cap for training refractory Rabbit ears in the right direction; perhaps some of our readers can supply the information, or how such a cap can be made.

**Cutting Hay (T. M.).**—The clause in the agreement, "cut once in hay not allowed to seed," is a reasonable one, and fairly interpreted means that the hay should be cut when the majority of the grasses are commencing to flower, not waiting until they have flowered. The process of ripening the seed of grass or any other crops seriously exhausts the land and weakens the plants, and consequently to defer the cutting until seeds have ripened is disadvantageous both to the landlord and tenant when the produce is grown for fodder. The hay, further, is much more nutritious when the grass is cut just as flowering commences than when it is left until the seed ripens.

### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
1881. June.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Sun. 12	30.059	60.8	55.4	N.W.	57.0	71.8	52.8	127.5	51.2	—	
Mon. 13	30.055	62.4	53.7	W.	58.6	72.7	49.5	128.0	45.3	0.017	
Tues. 14	30.033	59.4	53.4	E.	59.7	67.7	50.7	109.7	49.2	—	
Wed. 15	29.977	62.6	55.7	S.W.	59.6	70.6	48.2	98.6	41.9	—	
Thurs. 16	29.962	65.2	57.9	N.E.	59.6	73.7	53.5	108.0	49.6	0.020	
Friday 17	29.911	65.0	60.6	S.E.	59.9	72.7	57.6	108.7	51.9	0.384	
Satur. 18	29.864	60.8	58.6	S.	60.2	68.0	58.2	87.1	54.8	—	
Means.	29.983	62.3	56.5		59.2	71.0	52.9	109.7	49.1	0.421	

### REMARKS.

12th.—Fine, warm, pleasant day, rather overcast at times.  
13th.—Fine, bright, and warm, overcast at intervals.  
14th.—Cloudy and close, latter part of the day finer.  
15th.—Morning overcast; afternoon and evening fine.  
16th.—Warm, overcast, with sunshine at intervals; very slight rain in evening.  
17th.—Close and oppressive; some heavy rain in evening.  
18th.—Fine, but overcast and gloomy; a shower at 11 P.M., but the amount not measurable.

A rather dull week of nearly the average temperature.—G. J. SYMONS.





30th	TH	Richmond, Farnham, and Canterbury Shows.
1st	F	Strawberry and Cherry Show at the Alexandra Palace.
2nd	S	National Rose Society's Exhibition, Crystal Palace.
3rd	SUN	3RD SUNDAY AFTER TRINITY.
4th	M	Maidstone Rose Show.
5th	TU	Reigate, Harrow, Rochester, and Stourbridge Shows.
6th	W	Royal Botanic Summer Show. Cardiff, Norwood, & Wimbledon [Shows.]

### PREPARING FOR WINTER.

THOSE who are not deeply versed in the mysteries of gardening may perhaps think remarks under this heading somewhat premature, the more so as we can scarcely be said to have entered the summer season. But gardeners are required to look ahead, and long before one season is past they must be preparing for the corresponding period in the year following. Preparing for winter is no small matter; on the contrary, it entails a great amount of forethought and labour, which must be well and carefully performed. Procrastination with gardeners very frequently means either a partial or complete failure, and at no time is this more evident than when preparing for the winter. To attempt to treat upon all that requires preparation in one or two papers scarcely admits of justice being done to the theme; at the same time I shall endeavour to write as briefly as possible, commencing with some important crops requiring immediate attention.

#### STRAWBERRIES.

Probably no forced crops, provided they are good, give more pleasure to all concerned than Strawberries. Much trouble is certainly entailed in their culture, but if not forced very early no one can say they are unprofitable. Now is the time to layer the runners, and which method is most economical, and which are the best varieties for forcing, are the questions to be considered. The selection of varieties ought to depend entirely upon circumstances. Black Prince is suitable for very early forcing in 5-inch pots, but the fruits are too small to please many. Vicomtesse Hericart de Thury forces well and crops heavily; the fruits, however, are not large nor early in the season of the best quality. Keens' Seedling is still one of the best early varieties, and La Grosse Sucrée forms an admirable succession, though, unfortunately, the fruit travels badly. Sir Joseph Paxton forces well, and the fruit is large and firm. President also crops heavily, and the fruits are also large and handsome. British Queen and Dr. Hogg are equally good for late crops, the quality of both being very fine. I am required to have fine fruit ripe and of good flavour by the first week in April, and it has to be sent to the town house. My selection is Keens' Seedling, Vicomtesse Hericart de Thury, La Grosse Sucrée, and Sir Joseph Paxton. The three former will be fruited in 6-inch pots to the extent of two-thirds of the stock, the remainder being Sir Joseph Paxton in 8-inch pots, and these will continue the supply till the earliest plants on south borders are ripening fruit.

Opinions vary as to which is the best method of securing strong well-rooted plants for forcing, that most in vogue being

to layer into 3-inch pots and to shift into 6-inch pots. Several practical men I am acquainted with prefer layering direct into fruiting pots, and the results certainly appear to justify the practice. Strawberries must be potted firmly, and the young hands, and some old ones too I find, are apt to be careless in this respect, and that is a reason for advocating layering direct into fruiting pots, the ramming being more easily and therefore more surely performed prior to the runners being pegged down. My only objection to the practice is the fact of the necessarily heavy trampling appearing to injuriously affect the beds, and for my part I never experienced much difficulty in well filling the pots with roots. All my runners will be secured from old forced plants now in the open ground, and a number of small plants recently turned out of small pots and planted between some Gooseberry bushes and Box edgings. Early strong runners are thus obtained. Those intended for 8-inch pots and for planting-out will be layered into 3-inch pots, and the others direct into 6-inch pots. The soil employed will consist of strong and rather clayey loam, to every four barrowloads of which will be added one of sifted decomposed manure, and this mixture will in every case be made as firm as possible. Clean pots are needed, and in the case of the large sizes good drainage is essential; and I think it advisable to place a thin layer of moss over the potsherds, sprinkling a little soot on this, which will both assist the plants and tend to exclude worms. The young layered plants are separated from the old stools as soon as established, and where it is required they are transferred into the large pots before becoming much rootbound. The plants to be arranged in beds on ashes, and in a sunny open spot, avoiding crowding, and at no time from the date of layering to finishing the crop of fruit must the soil be allowed to become very dry. Strong well-established plants do not require to be stored in frames to protect them from frost, but it is advisable to plunge in ashes and other material to preserve the pots from cracking. We have a rough frame for storing away the plants intended for early work, and this frame is afterwards utilised for dwarf early Peas.

#### BROCCOLI AND WINTER GREENS.

In spite of the two disastrous winters, it is very probable that these crops will be grown more extensively than ever. The late dearth among these green crops has decided many to make more strenuous exertions to maintain a supply. Never, perhaps, was a worse start made than this season, as it seemed impossible to secure enough plants to place out. The first batches in the open were cleared off as they showed above ground, and even strong Cauliflower plants could make no headway against the ravages of the small beetle that attacks them. The next sowing nearly shared the same fate, and eventually the remainder of the seed had to be sown in hand lights. The plants thus obtained are now pricked out and are growing satisfactorily.

It is a very common practice to sow the seed of the Brassicas on sheltered borders, often in small beds, where the plants remain in a crowded state till the ground may be cleared for their reception. This is a decidedly bad commencement: it is better by far to prick out the young seedlings when in rough leaf, choosing showery weather for the operation. Plants thus treated will not only be sturdy, but can easily be lifted with a good ball of soil attached, which is of importance in late planting. The unusually vigorous growth of the Potato

haulm last season, unless the rows were very widely disposed, completely overran the winter vegetables planted between them, and it is not unlikely the same thing will occur this season. For this reason I advise those who wisely have taken the precaution of planting good breadths of early and second early Potatoes to first lift these as soon as matured (the haulm need not be ripe nor the skin of the tubers set), and, clearing off rubbish and heavily trampling the ground, to at once fill up with the winter vegetables. Supposing the Potatoes to be lifted during hot dry weather, the drills for the crops under notice may be drawn about 3 feet apart, and be filled with water a few hours prior to planting. All strong-growing varieties may be planted 2 feet or 30 inches asunder in the rows, and should be planted with a trowel and have the soil firmly rammed about the roots. Two or more waterings will perhaps be required before the plants are established, afterwards the soil should be drawn up to the plants to enclose moisture and also to steady them.

Broccoli will not only grow in solid undug ground, but the growth there is of such a description as to best withstand our winters. A freshly cleared Strawberry bed is especially suitable, and the drills may either be cut out with a heavy hoe and soaked with water, or the holes for the plants may be made with a crowbar. Ground recently occupied with Peas and Beans may be similarly treated, but if very poor the drills should be soaked with liquid manure. In these cases there is no necessity to bury the stems as a protection from frost. In our case a large breadth of ground outside the walls, which is unsuitable for Potatoes, will be filled with Broccoli, and the whole of these lifted with balls of earth attached, placed on handbarrows, carried to the highest part of the garden inside the walls and laid in. The heads will face to the north and will be packed rather closely. The whole of the stems will be covered with earth, a liberal quantity of manure being worked in with the roots. Early in October will be the time chosen for the operation, which will allow the Broccoli good time to recover themselves. By this method I have every confidence in being able to secure a large number of fair heads, towards the size of which the manure will materially contribute. A good batch of Snow's Winter White and Veitch's Autumn Protecting will be lifted and stored in rough pits, others of the same variety on solid ground will be left to take their chance in the hope of getting early supplies. Last season a batch of late-planted Veitch's Autumn Cauliflower on a sheltered border yielded a number of very acceptable heads till late in December. I shall repeat the experiment.

#### BRUSSELS SPROUTS.

These to be profitable ought now to be growing freely, but in some seasons late-planted breadths prove remunerative. These are best grown on rich solid ground, or rather on newly-manured fresh soil. Where the plants are much drawn up in the seed beds, rather than dibble them in deeply I advise laying them in sloping trenches, shaking some manure about the roots, and covering the stems with the soil from the next trench, treading it firmly about them. The plants soon become upright and may do well. Kales are very hardy and should be grown extensively, and Savoy's should be planted in good quantities, the small kinds being especially suitable for narrow borders.

#### COLEWORTS.

If these are not already sown no further time should be lost, as they will be found very serviceable and should be grown in quantity. The Rosette Colewort is the most hardy and reliable, and large breadths of it cannot fail to prove useful. The plants may be dibbled in about 15 inches apart each way, and will do well in succession to autumn-sown Onions. They can also be planted after widely-planted Potatoes, and between the rows of winter vegetables.—W. IGGULDEN, *Marston*.

(To be continued.)

A PLAGUE OF BLACKBEETLES.—Paragraphs with the above heading have appeared in various newspapers, referring to the abundance of the blackbeetle or cockroach (*Blatta orientalis*) in London this summer. A similar circumstance I have noticed in a country town, where this insect has been found about houses in

which it had not been seen for years. It is necessary that gardeners should remember (as I pointed out in this Journal some seven years since), that this species is fond of making excursions from human habitations to gardens and greenhouses that may be adjacent, and will do mischief at night to plants or sometimes to fruit. Phosphorus paste, especially in the form of "Chase's beetle poison," which requires no mixing, is efficacious in killing some, and (seemingly) in scaring away others, or hundreds may be caught in traps by a little bear or syrup. The rinds of the Cucumber have been said to be destructive to them, but I have not found such a result from placing these in their haunts.—J. R. S. C.

#### ABUTILONS.

FEW plants can be more strongly recommended for blooming in our greenhouses and conservatories throughout the spring, summer, autumn, and winter than these. They are almost the only plants from which flowers may be cut every day in the year; yet Abutilons have scant attention by writers in the gardening press. But silence in this respect must not be regarded as disparaging to the plants, as the improved varieties of Abutilons are not generally known. The best known sorts are *A. Boule de Neige* and *A. rosea*, white and pale rose; and although the white variety is good, the other is inferior in size of flower. When we come to colours there are abundance of fine flowers to choose from in purples, pinks, yellows, lilacs, and intermediate shades. I have no list of names to submit, as all our best varieties have been had from seed, and I cannot do better than advise those beginning the culture of Abutilons to obtain a packet of mixed seed. From this many plants may be obtained, and in all probability excellent varieties.

An amateur cultivator in my neighbourhood has a great fancy for Abutilons, and nearly every corner of his small glass structures are occupied with plants. All the best of his flowers have been raised from seed obtained from a firm that frequently advertises in this Journal, and the best of ours have been had from the same source. Many of these seedlings surpass any named varieties I have seen in habit of growth, profuseness of blooming, and richness of colours.

Those who have no Abutilons would find it an advantage to procure a few plants now, and at the same time sow a packet of seed. The small plants would supply a luxuriant crop of flowers in the autumn, and the seedlings would bloom by the new year and onwards. Then there would be no break in the supply, because as growth proceeds flowers are emitted from every joint, and often in clusters or handfuls.

The culture of the plants is simple. Cuttings root freely with a very slight bottom heat in winter and early spring, and in summer they do not need this, as a close frame is all that is wanted for propagation. They may be rooted singly in small pots, or numbers together in 5 or 6-inch pots; and seed sown at the same time and in the same frame will furnish plants which, when a few inches high, will come under the same treatment as newly rooted cuttings. As soon as a few roots have been formed the plants must be potted in a mixture of loam, leaf soil, and sand; but at subsequent pottings more loam must be used and decayed manure substituted for leaf soil. The plants may be flowered in 6-inch pots if required; but if fine specimens are wanted and a large supply of flowers, 8-inch or 10-inch pots may be employed. Good drainage at all times is essential to success.

Immediately after each potting it will be necessary to keep the plants in a close atmosphere for a few days, but when growing a cold frame or cool house is their proper place in summer and autumn, and a slightly warmer place suits them well in winter. Unlike some of our best and most showy flowering plants they are not liable to become infested with insects, and in this respect alone they save amateurs much expense and trouble. The flowers, too, are very hardy, and not in any danger of damping off in cold moist weather. Our plants do well in frames and cold houses from March until October, when they have the assistance of a little warmth to keep them growing. Some of them are planted out and trained in odd corners or up pillars. These are most useful for affording flowers for cutting, as they grow and flower more freely than those in pots; but the latter are the most useful for various purposes of decoration, and we therefore find it profitable to grow them in both ways.

In training, the wall and pillar plants are allowed to grow unchecked, but in pots they are restricted and grown into bushy specimens. As it is on the points of the shoots that the flowers are produced, these may be allowed sometimes to grow out of proportion to the symmetry of the plant, as no one likes to take the points out of plants when they are full of flower buds; but the plants at certain seasons may be cut closely down to the soil, and

they will soon become more compact, as they bear cutting and training to almost any extent.

Plants which may have been blooming throughout the summer will have their pots well filled with roots in autumn, and do not make such strong growth in a close warm place in winter as late-rooted plants do. During winter they open quantities of their useful bell-shaped flowers in a greenhouse temperature, but a little additional heat is sometimes of advantage in maintaining a full supply.—M. M.

#### HORTICULTURAL KNOWLEDGE.

"INQUIRER" appears to have a vivid recollection of his youthful days of high and rigid temperatures. He has known "the men" blow the glass up, and thus have the heat at the regulation point for the foreman. He does not say whether he was one of the "men" or the foreman, but that is of little consequence. Working under the tyranny of high and stipulated temperatures, from which the deviation of two degrees often or always led to a "scene," I have in the interests of peace and morality been guilty not only of thus momentarily raising the temperature, but have syringed the hot-water pipes for a quarter of an hour, and so gained two or three degrees to preserve my credit as a fireman; but I am afraid the after-condensation was not beneficial to the winter Cucumbers and early Vines. I have also found it necessary to throw open front and back ventilators on a frosty night to bring down the temperature from 76° to 74° at a critical moment. If there are any gardeners left who determine that the temperature shall be kept "to a degree," they may as well know that if they are hard taskmasters they are similarly imposed upon, for they expect an impossibility, and the men do their best to meet the extraordinary demands. But I did not prove an "unthinking pupil." I thought then the principle of high night temperatures and an unflinching adherence to stipulated figures was a fallacy, and determined to test the point on the first opportunity. I have been testing it for twenty years and find I can produce as good if not better Grapes than under the nocturnal driving system, while it is a fact that I have saved coals to the extent of more than half my wages. Having had experience of both the systems referred to, I find that very fine Grapes can be grown under the former for a few years, but the Vines then need renovating, but under a more natural, and, I think, rational mode of culture, they continue healthy and fruitful for an indefinite time. I have had as fine sets of Black Hamburgs at a minimum of 50°, and Muscats ranging between 55° and 60°, as I ever saw when the night temperatures were on an average 10° higher. Yet I cannot forget that if now I am successful, then I was—A CULPRIT.

#### REVIEW OF BOOK.

*A Manual of the Coniferæ, with Numerous Woodcuts and Illustrations.* London: James Veitch & Sons.

THE aim of this work is to treat of the Coniferous family in a manner which shall be intelligible to the commonest understanding, so that those who have not had what is called a scientific education will in it possess a text book freed from the ordinary conventional technicalities which so much bewilder the uninitiated. The authors have succeeded in their object, and we have before us a work of 342 pages, which treats of the subject clearly and intelligibly.

The work is divided into three parts. Part I commences with a "General Review of Coniferous Plants," and treats of the structure of the wood, the organs of vegetation and fructification, the secretions, economic properties, the diseases and accidents to which the trees are liable, their geographical distribution, and their scientific arrangement and nomenclature as given by the most eminent botanists. Several pages are also devoted to the literature of the Coniferæ, which affords evidence that much pains and research have been exercised in rendering this section of the work both interesting and instructive.

The second part opens with a synopsis of the genera, species, and varieties suitable for cultivation in Great Britain, followed by copious descriptive, historical, and cultural notes of the different species, arranged in the sections under which they are grouped. For instance, the Abies are divided into three sections. I. Piceæ, the Spruce Firs; II. Sapini, the Silver Firs; III. Tsugæ, the Hemlock Firs. The notes on the species in each genus are preceded by tables in five columns, the first column containing the scientific name, the second the synonymes, the third the popular name, the fourth the habitat, and the fifth average height of each species. Then follows in alphabetical order the notes referred to—some brief, some copious, as the subject demands. In the treatment of the species and varieties there appears to have been

no over-writing on the one hand, nor hesitation to incorporate matter on the other when anything interesting could be advanced relative to the origin, discovery, or peculiarity of the different forms; also, as intimately connected with the subject, biographical notes are incorporated of such collectors as Douglas, Hartweg, Menzies, Jeffreys, Lambert, and Lobb. The references to the lives and work of some of the more famed collectors are copious and full of interest. We observe, however, an error in indexing, for the note in reference to Lambert is on page 180, not on 188 as stated. The part of the work under notice is by far the largest, embracing 260 pages, and the most important; but whether the plan of including the Silver Firs under the head Abies instead of Picea will meet with general acceptance is an open question. Piceas pectinata, nobilis, Pinsapo, and others will probably remain Piceas in the view of the majority of British cultivators, and there is at least equal justification for this as for the retention of the name Wellingtonia, instead of the more strictly accurate name of Sequoia gigantea.

The question of generic classification as well as specific nomenclature in the Coniferæ is admittedly a difficult one. The diver-

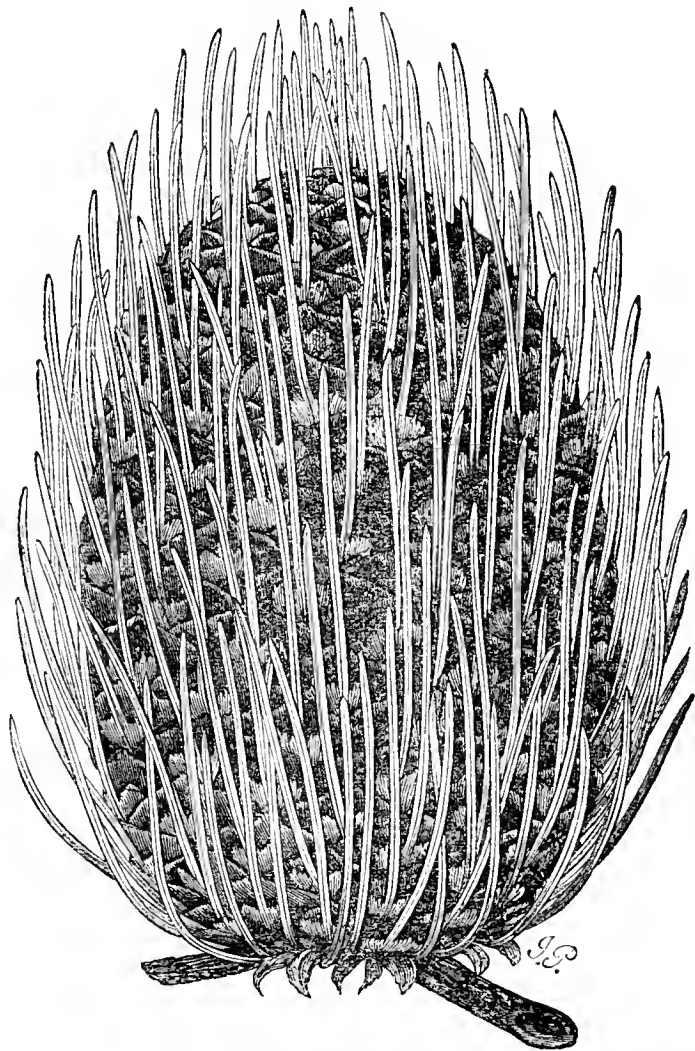


Fig. 117.—Cone of *Abies bracteata*.

gence of opinion among authorities is strikingly manifest, and stands out boldly even throughout the work under notice. In respect of some of the species endeavour has been made to amend the nomenclature, as in the case of *Abies lasiocarpa*, with its half dozen synonymes, and the true name of which is determined on page 94 of the book as being *A. concolor*; but better reasons are given for the substitution of *Sequoia* for *Wellingtonia*, yet English custom has proved stronger than international science in this case, and the popular name is retained.

The work is copiously illustrated. There are many excellent engravings of notable specimens, cones and sprays. The first specimen represented is of *Abies orientalis*, 53 feet high, at Highnam Court. Then follows *Abies bracteata*, 29 feet high, as growing at Tortworth Court. Lobb said of this species that the "cones are quite as singular as the growth of the tree is beautiful." We submit one in proof of this, and also as representing the character of the engravings of the work under notice. *A. concolor* or *lasiocarpa*, 46 feet high, is shown from a fine specimen in Mr. Gambier Parry's collection; but a more perfect and handsome example about the same height may be seen at Orton Hall, Peterborough (Dowager Marchioness of Huntly's), and near it, also fine, *A. Lowiana* or *Parsonii*, the two trees being quite dissimilar.



*Abies nobilis* at Highnam Court, 60 feet high, is also shown, with a grand cone of this beautiful Fir. *Cedrus Deodara* at Dropmore, 64 feet high, and a varietal form at Tortworth, 41 feet high, are figured. The Dropmore example is probably one of the specimens that were raised from seed sent there by the introducer, the Hon. W. Leslie Melville, about 1831. A letter is before us from the brother of this gentleman, the Hon. Alexander Leslie Melville, of Branston Hall, Lincoln, under date June 11th, 1881, which states that "The first Deodar seed that vegetated in England was brought by my brother in his waistcoat pocket. The plants were raised at Dropmore. In 1854 my brother sent an artist to make a drawing of them, which I now possess. The trees seem to thrive well about London and to the south of it. A severe winter has killed most of them in the north, where the frost has been intense. In 1859-60 they were killed at Woodhall Park, Herts. Some later plants than those at Dropmore are thriving well at Melville House, Fife, N.B." These trees, which we have seen, are, however, old and divested of their lower branches. Much interesting matter is given relative to this beautiful Cedar, but its liability to be destroyed during severe winters, as stated by Mr. Melville, is omitted, doubtless by inadvertence; for it is one of the merits of the volume that the drawbacks of many of the species are described as freely as their merits are extolled. This is plainly manifest in the notes referring to the Mexican Pines that were introduced by Hartweg, for of one of the commonest of them—*P. Montezumae*—it is stated "it is not hardy;" but in the collection above referred to near Peterborough a handsome specimen 25 feet high has passed the late severe winters, when the frost approached zero, without having received the slightest injury. Its fine varietal form, *P. macrophylla*, is very much larger in the same collection. This, too, has passed scatheless, while the *Wellingtonias* around it were much browned and *Abies bracteata* injured. The leaves of *A. microphylla* are fully a foot long and droop gracefully, those of the species assuming an incurved upward position, and are stouter in texture and shorter. This evidence as to the hardiness of these imposing Mexican Pines will not be without interest.

The chapter on the *Wellingtonia* is elaborate, but little or nothing is stated as to the uses of the wood, a matter of some importance, seeing that thousands of specimens in this country have attained the dimensions of timber trees. On the subject of utility we are able to state that from a collection of upwards of three hundred specimens, some of them between 50 and 60 feet high, large trees have been felled, the trunks exceeding 4 feet in diameter, the wood having been applied to various purposes, and has proved practically speaking worthless.

The chapter on *Araucarias* includes an illustration of the splendid Dropmore specimen, the present height of which is 61 feet, and the tree is perfectly furnished. In the deciduous Cypress section is an illustration of the remarkable old specimen of *Taxodium distichum* at Syon House, 90 feet high, with "knees" or protuberances from the roots. It is stated that "no cause has been assigned for the existence of these 'knees,' but they are made use of by the Negroes of the Southern States for bee hives." An example of *Cryptomeria elegans*, 20 feet high, at Linton Park, and one of *C. Lobbi*, 46 feet high, at Dropmore, are represented. There is also shown a group of Japanese Conifers (*Retinosporas*) at Linton Park, also a fine example of *Thuia gigantea* in the same collection 50 feet high; and a well-finished example of the beautiful *Thuopsis dolabrata* in Lord Brownlow's collection at Ashridge. The height of this is not named—a small but rather important omission, as, judged by the relative height of the preceding figure, the specimen in question would be about 40 feet high, which cannot be the case. The chapter on the Incense Cedars (*Libocedrus*) is necessarily short, those on the Junipers and *Taxads* being very complete. In the section devoted to the Fetid Yews it is stated that "Torreyas do not thrive well in Great Britain, but in their scientific aspect they possess a deep interest." It is unfortunate that they do not usually succeed in English gardens, as a fruiting specimen of the Californian Nutmeg (*T. myristica*), from which seedlings have been raised, is a beautiful ornament in the garden at Northamptonshire, which has been previously referred to.

The third part of the work treats on the various purposes for which the Coniferae are planted, and imparts information of great practical value. Selected lists are given of kinds suitable for planting in parks, pleasure grounds, avenues, also for evergreen hedges, for belts and screens, the conservatory and winter garden, as memorial trees, and for cemeteries and burial grounds; the concluding chapters being devoted to Coniferous trees valuable for their timber, and a reference to the collection of cones in the museum in the Chelsea nursery, which is open to the inspection of visitors.

As will be gathered from this notice the work is a comprehensive one—essentially practical to be of substantial utility, and sufficiently technical to be educationally instructive. Considering its magnitude and complexity, the subject has been treated in a manner for which Messrs. Veitch deserve warm commendation. The volume is excellently printed, and should be possessed by all who are interested in the Coniferae, on which it will rank as a standard work, and will no doubt be included in public as well as private libraries. For the next edition, however, we would suggest a much more copious index, which would greatly enhance the value of the book as a work of reference.

#### TUBEROUS BEGONIAS AT FOREST HILL.

MESSRS. JOHN LAING & Co. have justly earned an almost world-wide fame for their Tuberous Begonias, as the experience and careful attention brought to bear upon the crossing of these popular plants have resulted in the production of many varieties of unrivalled beauty; indeed, a very large proportion of the best forms grown in English gardens at the present time have either being raised at the Forest Hill nurseries or sent into commerce from that emporium. Consequently a visit to the establishment is invested with more than ordinary interest to all lovers of this attractive section of the genus *Begonia*, and to obtain an adequate idea of the range of variation in the size, form, and colours distinguishing the flowers, together with a conception of the enormous demand now existing for such plants, a better time than the past or present week could scarcely be chosen for the purpose. Several large glass structures are devoted to the plants, but the majority of the large specimens representing the best single varieties are arranged in a span-roof house nearly 100 feet long. The effect produced by the abundant brilliant scarlet, soft rose, delicate yellow, or pure white flowers, is not only most striking, but is probably unequalled as regards the general excellence of the varieties and plants. Annually a great number of seedlings are raised by carefully crossing all the finest forms, in every case with some distinct object in view, to improve the form or size, or obtain a novel shade of colour. Amongst the diversities thus secured there are necessarily many that surpass in some point varieties previously raised, and from these the most distinctly marked are selected for naming and distributing. That a most rigid exclusion is practised may be gathered from the fact that many thousands of seedlings are raised to produce comparatively few varieties considered sufficiently meritorious to be recommended to the public, and in one portion of the nursery nearly ten thousand seedlings are planted out for trial during the present season.

To enumerate all the really handsome varieties would require considerable space, and would indeed be unnecessary; but some of the novelties and a few of the most remarkable of the older forms may be advantageously mentioned to indicate the predominating characters of the principal types, commencing with the single-flowered section. Perhaps the finest variety that has yet been seen in respect to size, regularity of form, and brilliancy of colour is a seedling recently raised, and which on the day of our visit was entered in the list of named novelties as Consul Darlington. The flowers in several instances were  $4\frac{1}{2}$  by 5 inches in diameter, each of the larger pair of petals being neatly rounded, of great substance, and  $2\frac{1}{2}$  inches across. The colour is a bright vermilion, quite dazzling when seen in the sunlight, and the plant being dwarf in habit and very floriferous renders the variety one of great excellence. Another beautiful novelty is Annie Laing, which has already been exhibited on several occasions, and received the honorary distinction of certificates. It has flowers of exact symmetrical form, of good substance, the petals round and bright rose pink, one of the most distinct shades that have yet been produced. Mrs. Robert Whyte has also been accorded similar honours to the above this year; it has peculiarly rich, rosy crimson-coloured flowers very abundantly produced, and the compact habit of the plant is moreover an additional recommendation. Mrs. Highgate is in some respects suggestive of the well-known and highly valued variety Lady Hume Campbell, but there is more of a salmon tinge in the well-formed flowers, and these are borne in great profusion. Two new varieties of the Davisi type are Commodore Foot, which bears attractive rich crimson flowers, similar to those of its principal parent but larger and brighter in colour; and General Mite, with orange-tinted blooms. Both are dwarf, compact, and free in flowering, and would be useful for employing as a marginal line to larger-growing varieties, or in positions where the others would be unsuitable. Among the finest of the older forms Lady Hume Campbell, already referred to, well holds its position as a floriferous variety of excellent habit, and scarcely surpassed in the

rose tints. Mrs. Laing is an unrivalled white-flowered variety as grown at Forest Hill, very pure, of fine substance, and good rounded form; while Stanstead Royal, the progenitor of so many large-flowered varieties, is noteworthy among the forms with scarlet flowers. Many others are also indispensable in forming a collection, but those desirous of making a selection have every opportunity of doing so in exact accordance with their particular tastes, either at the nursery or the exhibitions, where the collections produce such bright displays.

The double-flowered varieties, like the others, have also many

admirers, and accordingly a house is devoted to them, all the best being represented. But the two leading forms are Comtesse H. de Choiseul and Davisi flore-pleno superba, the former having been in commerce some time, and the latter having appeared this season. Comtesse H. de Choiseul has flowers of moderate size, but quite full of petals, and of much better form than that characterising the majority of double varieties. There is a curious transition of colour as the flower advances in age, gradually changing from white to rosy pink or salmon. The "superb" form of the double Davisi well merits its name, for while pos-



Fig. 118.—NEPENTHES AMPULLACEA.

sessing the rich colour of the type the flowers have the numerous petals disposed with great regularity, imparting a symmetrical and refined appearance to the blooms. This has already been certificated at Kensington and elsewhere. A new double white named Campanulæflora is also noteworthy, the flowers being of very satisfactory substance and purity. Esther, rose; Flammea, crimson; Gloire de Naney, vermillion; Dinah Felix, red, white centre; and Marie Bonchet, of quite a purplish tinge, were in fine condition among many seedlings of more or less beauty.

To conclude these brief notes the following varieties may be mentioned as well adapted for culture in baskets, and when well treated Tuberous Begonias in baskets are attractive additions to

a conservatory or intermediate house. Most of the slender-growing forms are suitable for the purpose, but the following four are found to be generally useful—Violacea Mrs. Wills, Purple Emperor, and Massange de Louvrex.—VISITOR.

#### NEPENTHES AMPULLACEA.

RARELY is such a compact and handsome specimen seen of this Pitcher-plant as the one represented in the accompanying woodcut. This plant growing in a 6-inch pot was greatly admired by all visitors to Messrs. Veitch & Sons' Chelsea nursery early in the present year. Were it possible to ensure results so satisfactory



few would grudge any time and labour requisite for the desired end, but the majority of cultivators must be content with a more limited amount of success, and the most judicious treatment might fail to produce so well furnished a plant as that shown in the figure. Fortunately, however, *Nepenthes ampullacea* is not more difficult to grow than its relatives, tropical heat, abundant moisture, and a light compost of peat being its chief requirements, and if a good crop of pitchers be developed the plant becomes one of the most interesting in its family. Even though the pitchers lack the brightness of colour and peculiarity of marking distinguishing some *Nepenthes*, they possess other recommendations, being very neat in form, and the plant is dwarf and compact in habit. Indeed compared with *N. bicalcarata* and similar large forms it is quite a pigmy, and perhaps on this account is the more attractive by the force of contrast. Wherever the curiosities of the vegetable kingdom are valued this *Nepenthes* should obtain a place, as it will unquestionably be admired if carefully grown. As a table plant the specimen figured was quite unique.

#### HAMPERS AND BOXES.

It is a question if any appliances of the garden cause more trouble and annoyance to both employers and gardeners than these. An employer naturally thinks that if he sends a present of flowers, plants, or fruit, and has also purchased the hampers and boxes for sending them, that these should be promptly returned; and gardeners feel extremely annoyed when they find they can only use a hamper or box once, and have others to buy, beg, or obtain as best they may, because of the forgetfulness of people to return what has been lent to them. There are people who possibly think it is a small matter to retain a hamper from a nobleman to whom such an article is considered insignificant, but when a hundred are sent and not a tithe returned the matter ceases to be a small one, but, on the contrary, is of great importance, as many ladies, gentlemen, and gardeners know to their cost or disappointment. The least that anyone can do when they receive a gift is to return the article in which it is conveyed, as it affords the means of themselves and others receiving similar presents the sooner. The articles, however, ought to be returned on higher grounds—the grounds of right and justice. I hope if any readers of these lines have hampers or boxes that do not belong to them they will return them at once, and they will be gratefully received by more than one—VICTIM.

#### HOW SHALL WE MANAGE OUR BROCCOLI CROP?

I HAVE no doubt that through the severity of the past two or three winters, and the almost total failure of the Broccoli crop in consequence, the above question has passed through the minds of many gardeners who like myself have a large family to supply. As this vegetable is rather an important one in most places, it will be as well to discuss the possibility of getting better results by a different system of cultivation, or I ought to say, to try and improve upon the present one. It is perfectly clear to all that out of the many different varieties of Broccoli in cultivation there is not one that can be selected to go through the rigour of our winters unscathed. Considerable space may be occupied and much time and labour bestowed, yet the uncertainty of a crop remains the same. I have thought much on the matter, and conclude that some good may be done by paying more attention to details of cultivation, and not carry it out in that rough-and-ready way so much in practice now-a-days. I am of opinion that as a rule the seed of many crops is sown much too early and too thickly, and the plants are often allowed to stand in the seed bed too long, so that they suffer much when planted out. They should be pricked out early, whereas many times they are not pricked out at all. When finally planted out a much greater distance should be allotted them than is usually the case. I also think that as a rule Broccoli is grown much too luxuriantly, and instead of being planted in the richest garden soil one of very moderate quality is the best, of a more firm and tenacious character if possible rather than light and rich. If there is no alternative the soil should be made much firmer about the plants than is the custom. The object should be to grow them dwarf and slow, so that the tissues of the stem and leaves should be more hardy instead of soft and fleshy. It is not uncommon to see those plants that are dwarfest and at the outside of a plantation stand the longest. It often happens, too, that market gardeners who have to grow their Broccoli in the open fields are much more successful than gardeners where, from the positions of their gardens, the plants are much more encouraged in the early stages of their growth.

The year before last I saw a field of ten acres of Broccoli in the month of April, when very few had failed to stand the winter,

though most of the gardeners in the neighbourhood had lost their crops. This field was manured and planted with Peas, and the ground well cultivated between the rows. After the crop was cleared off the soil was well horse-hoed and cleaned, and the Broccoli planted out. Owing to the ground being hard at the bottom the plants grew very dwarf; none of the stems appeared to exceed 9 inches out of the ground. The man to whom they belonged said his plan was always to grow the plants on a hard bottom, but to well cultivate the surface. This is the plan that I want gardeners to try in the coming season. I am aware that there are some sorts of Broccoli much hardier than others—those must grow; and although we may not succeed in securing full success, we may at least prevent such a blank as we have had this spring in this all-important crop.

There are some very excellent varieties of recent introduction, but there are some old sorts which I should put more confidence in if I could obtain them true. Miller's Dwarf Russian is one, and Macfarlane's, or what some called Leslie's Late White, is another, some of which I never failed to save over the winter. I took a prize with the last-named at the International Exhibition in 1866, but have been unable to obtain it since. I grew the above two sorts when living in Suffolk in that severe winter of 1860 and 1861, and I think they were the only two which gave us some good cuttings in the following spring.—THOMAS RECORD.

#### BOUVARDIA ALFRED NEUNER.

It will be satisfactory to those who have purchased, or who intend purchasing, plants of the double *Bouvardia* which has received so much attention lately, to learn that the first flowers produced in England during the past week fully maintain the descriptions of the plant received from America. The flowers are fully as double as those shown in the woodcut on page 417 of this Journal, consisting of two or three corollas with from eight to a dozen pointed lobes arranged in a star-like manner, the inner whorl alternating with the outermost, and when the third is present the lobes of that are alternate with those of the second. There is not the slightest approach to contortion or deformity in the flowers we have seen, but, on the contrary, the most exact symmetry prevails; moreover they are pure white, of good substance, and are borne in moderately large dense trusses. The best example that has come under our observation is Messrs. H. Cannell & Sons' nursery at Swanley, where a specimen in a 48-size pot is bearing four fine trusses of flowers such as we have described; the plant also appears to be of vigorous yet compact habit, and as floriferous as many of the single forms. Messrs. J. Carter & Co. also have plants in flower at their Perry Hill nursery, and no doubt visitors to the London horticultural exhibitions and the meetings of the Royal Horticultural Society will soon be familiar with the latest addition to the list of double-flowered plants.

#### BRIEF NOTES FROM CHISWICK.

THE Royal Horticultural Society's Gardens are now very attractive, although the beauty of the fruit trees has faded for the season. Plants both outside and in the houses are in excellent condition, and much that is interesting may be noted.

*Ivy-leaf Pelargoniums*.—Most sections of *Pelargoniums* are largely represented at Chiswick, and of recent years the attention paid to the Ivy-leaf forms has led to the collection being greatly extended, all the best varieties in commerce being now included. Of the double varieties the best are Gloire d'Orleans, bright rose, fine truss, very free, compact habit; Sarah Bernhardt, bright pink and white, pretty; A. F. Barron, mauve pink, large compact truss; Astre, purple; Robert Fortune, similar to Gloire d'Orleans but a little darker; M. Dubus, very bright rose, excellent colour; and Mdle. Jeanne Wouters, which received a certificate a fortnight since at Kensington as seedling 29. The flowers are large, of a fine pink tinge, and the truss is also large and compact. Among the single varieties La Vesuve, scarlet; Bridal Wreath, white, crimson centre; and Alice Lee, of a scarlet shade, were the most noticeable.

*Pelargonium tricolor*.—The groups of old forms and species of *Pelargonium* occasionally shown at Kensington from this garden are invariably much admired, and it is surprising that some of these almost forgotten sorts are not brought again into general cultivation. The one named above and represented in fig. 119 is now flowering freely, and though comparatively scarce in gardens of the present day it was highly valued half a century and more ago. In 1796 the following remarks accompanied an accurately coloured plate in the "Botanical Magazine," and is of especial interest as showing the opinion then held of it:



"The *Pelargonium tricolor*, a species perfectly new in point of beauty, is thought to eclipse all that have hitherto been introduced to this country. Its blossoms are certainly showy, and in a collection of plants they are the first to attract attention. The two uppermost are dark red, nearly black; the three lowermost are white, hence the name of tricolor. This peculiarity of colour joined to their form has induced some to fancy a similarity betwixt its flowers and those of the Heartcase; to the flowers of *Lathyrus articulatus* in form and colour they also bear a distant resemblance." It deserves to be grown more extensively than is the case now, as the flowers are well suited for cutting, and they can be employed in buttonholes with admirable results.

*Tuberous Begonias*.—A beautiful display of these popular plants is observable in one of the houses. Many fine seedlings are included that bid fair to take honours among the novelties of the year. Good substance, bright colours, and excellent form characterise the majority, the effects of good culture being also evident in the vigorous growth and healthy appearance of the plants. Large pots are eschewed, none exceeding 8 inches in diameter—a



Fig. 119.—*Pelargonium tricolor*.

point of great importance too often neglected, for however fine a plant may be, if the pot be out of proportion to its size the effect is clumsy in the extreme.

*Gloxinias*.—These constitute another feature, and are similarly deserving of commendation. Among them, too, are several handsome seedlings of the semi-erect-flowered section, which now appear to be more generally liked than those with pendulous flowers. The advantage of the former is that a full view of the corolla is obtained, and consequently the colour, form, and marking are much more clearly observed. The flowers are generally large without being coarse, and several instances the colours are very delicate and bright.

*Hardy Plants*.—Numerous attractive plants are flowering in the borders and on the rockery, not the least beautiful being the English and Spanish Irises, or Xiphions, as they are now termed. Among the former are several fine varieties, the flowers of which are rich blue or purple, of massive form and very imposing, while the latter are distinguished by the peculiar combinations of tints marking the flowers, some being characterised by hues that for peculiarity are only rivalled in the great Orchid family. Iberises, too, are fine, especially that useful form *I. Garreuxiana*, which is a mass of its white blossoms. Around one bed is a band of a very humble but none the less pretty plant—viz., *Thymus rotundifolia*; the small bright purplish blossoms being

produced so freely as to quite conceal the foliage. Other plants are noteworthy, but these remarks may be brought to a conclusion by referring to—

*Gillenia trifoliata*, of which the woodcut (fig. 121, page 535) represents a flowering spray. It is a North American plant included in the great Rose family, and usually attains a height of 2 feet, being compact in habit and flowering freely. The leaves are formed of three leaflets, as the name implies, each being pointed and serrated at the margin. The flowers have five white linear petals, and are borne in loose panicles at the upper part of the stem. It frequents damp and boggy places in its native habitats, but it is not particular under cultivation, almost any light well-drained soil suiting it. The plant cannot be described as one of the most showy, but the slenderness of the stems and flowers impart a degree of elegance to it that entitles it to some consideration.—L. C.

#### TRADESCANTIA VIRGINICA.

It may not be generally known that this is one of the finest hardy herbaceous plants for town gardens that can be grown, and the bright violet-blue flowers with yellow stamens are extremely beautiful. Its flowers are most suitable for cutting and placing in vases, as they continue fresh for weeks when the stalks are placed in water; or rather fresh flowers expand the same as those of *Gladioli* do. The plants thrive in almost any kind of soil provided they have plenty of water, and they will well repay for a liberal application of liquid manure twice a week if the soil is poor. I have a number of plants in my brick-enclosed garden, but none at the present moment is so satisfactory and useful as this *Tradescantia*. It is so hardy that no amount of frost injures it, while no insects attack it, no smoke appears to check the growth, and whether the weather is cold or hot it never fails to produce a long supply of its very bright and attractive flowers. In all gardens this old plant should be grown, but for town gardens especially it is admirably adapted, and flourishes as well in summer there as *Chrysanthemums* do in the autumn. It is readily increased by division; and early spring, just as the young growths appear, is a good time for replanting.—A CITY MAN.

#### NOTES AND GLEANINGS.

TO OUR READERS.—The preface, with the index to the present volume, will be published with our next issue, which will also contain a portrait of the founder of the *Cottage Gardener*, Mr. G. W. Johnson, who relinquished his editorial duties some time ago to seek the rest he has so well earned.

— AS usual the EVENING FÊTE OF THE ROYAL BOTANIC SOCIETY, which was held on the 22nd inst., proved very successful, the floral decorations and groups producing a brilliant display, and a large number of visitors assembled although the night was cold for the season. Nineteen classes were provided for dinner-table decorations, cpergnes, bouquets, baskets of flowers, and groups of plants. In several the competition was keen, and in the majority very satisfactory exhibits were staged. The chief prizes were awarded to Messrs. W. P. & G. Phillips, Oxford Street; Mrs. Henderson, Hamilton Terrace; Mr. W. Wood, Conduit Street; Messrs. Dick Radclyffe & Co., Holborn; Miss Gardener, St. John's Wood Park; Mr. Buster, St. Mary's Cray; Mr. J. Prewett, Hammersmith; Miss A. Williams, Holloway; Mr. W. Brown, Richmond; Messrs. Henry & Co.; and Mr. G. Wheeler, St. John's Lodge, Regent's Park.

— AN amateur cultivator submits the following IMPORTANT ADVICE TO PURCHASERS OF PANSIES—"During the past May and the present month Scottish nurserymen have been flooded with orders for Pansies from the south. Of course they are glad to sell their stock, but they would be better satisfied were the orders to reach them in autumn or early spring, when the plants would give their customers that satisfaction which all respectable

vendors like to hear their goods have given. As it is, it can only be through careful management that plants purchased in early summer will get established in the south at all; and as to blooms either like or in the least approaching to the same varieties when well grown, that is simply out of the question. Those who have purchased so late ought not therefore blame the vendors where such Pansies have not succeeded to their expectations."

— WE regret to have to record the DEATH OF MR. S. M. CARSON, formerly gardener to Mr. T. Farmer at Nonsuch Park, Cheam, where he attained much celebrity as a plant grower and exhibitor. He was a native of Gatehouse of Fleet, in Kirkcudbrightshire, and after filling several positions of varying importance he took charge of the Orchids and stove at Messrs. Lodiges' Hackney nurseries; thence he proceeded to Nonsuch in the capacity of head gardener and bailiff, which duties he performed until 1872, when he retired on an annuity generously allowed him by his employer. Mr. Carson was sixty-seven years of age at the time of his death.

— "G. H." writes—"Will any correspondent of the *Journal of Horticulture* kindly give the experience as to the best methods of EXTERMINATING WIREWORM from a garden?" Possibly some of our readers can give the information desired.

— CAULIFLOWERS seem to thrive at the Cape, where, according to the *Cape Argus*, a seedsman has been exhibiting three which weigh together 80 lbs.

— THE IPSWICH HORTICULTURAL SOCIETY'S Summer Show will be held on July 5th in Christchurch Park, Ipswich, and the Autumn Show at Holy Wells on September 2nd. There are seventy-four classes in the schedule, apart from cottagers' prizes, and sixty-four in the latter. Among a long list of donors of special prizes we observe that Mr. Kingdon offers a silver cup, value £5, in the amateurs' class for twenty-four Roses. In the open class for forty-eight Roses the chief prize is £5.

— MESSRS. J. CARTER & Co. have now an extremely fine display of PETUNIAS AT PERRY HILL, where in several long span-roofed pits between twelve and thirteen thousand plants are flowering. Very careful selection of seed has been made, and as the result the flowers exhibit a greater diversity and brightness of colours than we have yet seen. From the above large number of plants the least promising are being removed, only the most distinct and beautiful being retained for yielding seed, so that the strain is likely to become an unusually good one. The single varieties are particularly notable for the rich tints they represent, some of the crimson and purple hues possessing a remarkable depth and clearness, in some cases approaching maroon in intensity. Rose and white selfs are also included, others being striped with crimson or pink on a light ground, the markings very evenly defined, or in still other instances the corollas are covered with a delicate lacing of purple and crimson on a pale lavender or white base. Doubles are similarly good, very full, substantial, in some cases having deeply fringed margins, and in others, more peculiar but less pretty, the edge is green and the body colour pink or crimson. Such an extensive and admirable collection of these plants is rarely seen in the neighbourhood of the metropolis.

— THE "American Cultivator" has the following relative to the APPLE CROP OF MASSACHUSETTS:—"Respecting the great Apple crop of Massachusetts last year the town of Shrewsbury stands high in quantity of Apples produced. Having a soil specially adapted to Apple culture, and a population that has given the subject much attention, the Farmers' Club recently through a committee canvassed the town for facts and figures. The committee's report gave as the product for 1880, 30,000 barrels of marketable winter Apples exclusive of the fall fruit; also 15,000 to 20,000 bushels which went to the cider mills. There

are about thirty farmers in town who produce 400 to 500 barrels of Apples each per annum. A few raise a larger quantity, say 600 to 800 barrels, but none as high as 1000 barrels. Of the 30,000 barrels noted above nine-tenths were Baldwins."

— IN Mr. Birbeck Hill's volume, recently published by Messrs. De La Rue & Co., entitled "Colonel Gordon in Central Africa," it is stated that the wealth of one of the districts referred to consists of Fig trees, which are owned by individuals, and eighty of them make a very rich man. The trunks get hollow, and storms fill them with water. Some of the trees will hold a ton and keep it pure and fresh. They are the reservoirs of a thirsty land. Ants too, which are very numerous, contribute to the water supply by forming hollows with means to conduct the rain into them, and so keep reservoirs of water in dry seasons.

— RELATIVE TO GROWING MUSHROOMS IN CAVES, the following appears in a daily paper:—"An enterprising Frenchman, remembering what is done in underground Paris in the way of Mushroom cultivation, has proposed to take a lease of a portion of the Mammoth Cave in Kentucky with the view of raising regular crops of the nutritious and delicious fungus. As the cave contains many square miles of underground passages, none of which are shown to visitors because there is nothing attractive in them, the authorities will probably accept the Frenchman's offer, and lease the "Great Bat Room" to him for the purpose of growing Mushrooms. This passage, formerly known as Audubon's Avenue, was not long ago a resort of "consumptives," who resided in cottages built near the entrance, the pure air and the equable temperature being supposed to compensate for the absence of sunlight and the sights and sounds of the busy world. A very short time sufficed to explode that fallacy, and it is now probable that the uninteresting portions of the cave will be devoted to the culture of Mushrooms, for which they are admirably adapted."

— A CORRESPONDENT of the "Irish Farmers' Gazette" has submitted the following dimensions of CONIFERS AT WOODSTOCK, KILKENNY:—*Araucaria imbricata*, height 52 feet, diameter of branches 29 feet, girth of stem 3 feet up 7 feet 1 inch; *Cryptomeria Lobbii*, height 44 feet, diameter of branches 18 feet, girth of stem 4 feet 2 inches; *Cupressus macrocarpa*, height 58 feet, diameter of branches 48 feet, girth of stem 8 feet 6 inches; *Picea cephalonica*, height 58 feet, diameter of branches 44 feet, girth of stem 8 feet; *Pinus insignis*, height 66 feet, diameter of branches 43 feet, girth of stem 8 feet 10 inches; *Pinus strobus* (Weymouth Pine), height 65 feet, stem clear of the branches 57 feet, girth 7 feet 7 inches. The largest common Silver Fir is 107 feet in height, diameter of branches 59 feet, girth of stem at 4 feet from the ground 14 feet 9 inches.

## ROYAL HORTICULTURAL SOCIETY.

JUNE 28TH AND 29TH.

THE annual Rose Show of this Society being held in conjunction with the Exhibition of the Pelargonium Society produced, as was expected, a display of considerable beauty and extent. Not only was the long tent occupied as last year with the Roses and Pelargoniums, but the large marquee employed at the recent Show was also called into requisition, and though this was not crowded yet sufficient was contributed to produce an admirably effective display. The Fruit and Floral Committees' duties were comparatively light, but several interesting plants and some fine Melons were submitted to their consideration.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. Six Melons were exhibited, a fine example of Highcross Hybrid being shown by Mr. T. Hopkins, The Gardens, Highcross, Framfield, Sussex, for which a first-class certificate was awarded. It is a green-flesh variety, very solid, of good flavour, and well netted, the fruit being above the medium size. Mr. C. Howe, The Gardens, Benham Park Newbury, sent a scarlet-flesh seedling, the result of a cross between Queen Emma and Read's Scarlet-flesh; it was of good form and colour. Mr. G. Abbey, gardener to C. N. Palmer, Esq., M.P., Grinkle Park, Yorkshire, had a fine fruit of a green-flesh variety superbly netted. Mr. Carmichael,

The Gardens, Nowton Court, and Mr. C. Ross, Welford Park, Newbury, also sent Melons, the former not considered sufficiently distinct to merit an award, and the latter arrived too late. Mr. G. Thompson, gardener to C. Lee, Esq., Croxby House, Hounslow, sent two fine bunches of Madresfield Court Grapes. A cultural commendation was awarded. Mr. G. Miles, The Gardens, Wycombe Abbey, Bucks, was accorded a vote of thanks for a fine dish of Stamfordian Tomatoes, and a similar award was granted to Mr. W. Ward, Longford Castle, Salisbury, for fruits of the same variety but not so even. Mr. R. Gilbert, The Gardens, Burghley, had a dish of Peaches, "The First Lord," of moderate size and apparently ripe. Mr. H. Eckford, gardener to Dr. Sankey, Sandywell Park, Cheltenham, exhibited fruits of a small Cucumber named Climax, very even, and bearing good bloom. A vote of thanks was accorded. Messrs. J. Veitch & Sons sent examples of their Extra Early Forcing Cauliflower, which had heads of moderate size and very white, and deserved the certificate awarded. It was stated that seed of this and the Early London Cauliflower were sown February 14th of the present year, and at this time the latter shows no sign of heading. Mr. Thomas Piper, Maresfield, Sussex, was accorded a vote of thanks for examples of his Golden-podded Broad Bean, the pods being small but of a yellow colour when ripe. Mr. R. Dean, Ealing, sent a seedling dwarf Pea, a cross between Laxton's Unique and Dean's Dwarf Marrow. Mr. Miles had specimens of Suttons' New Mammoth Cos Lettuces; and Mr. Gilbert Suttons' Marvel Cabbage Lettuce, both fine.

**FLORAL COMMITTEE.**—J. McIntosh, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, exhibited a group of new plants, among which the following were noticeable—*Juncus zebrinus*, the Variegated Reed; *Amaryllis* The Syren, a variety with finely formed flowers, bright scarlet; *Impatiens* Mariana, a dwarf form with small leaves variegated with white and green; *Globba coccinea*, a peculiar zingiberaceous plant with spikes of bright scarlet wax-like flowers and dark green elliptical leaves; *Styrax serrata*, one of the Benzoin family, with ovate bright green leaves and pendulous white flowers; *Astilbe Thunbergi*; the handsome *Spiraea* previously described; *Vitis heterophylla* variegata, and several others which were certificated. Mr. Croucher, The Gardens, Sudbury House, Hammer-smith, sent several Orchids, among which were a fine *Odontoglossum vexillarium* atro-roseum with two spikes of seven flowers each, very large and deeply coloured, for which a cultural commendation was awarded, and a specimen of *Lycaste Deppei* splendida with about twenty flowers. Messrs. Downie & Laird were accorded a cultural commendation and a vote of thanks for a stand of very handsome seedling Fancy Pansies. Messrs. H. Cannell & Sons, Swanley, had a basket of the double *Mimulus* Beauty of Sutton, and a specimen of the double white *Bouvardia* Alfred Neuner, described in another column. W. H. Tillet, Esq., Sprouston, Norwich, was accorded a vote of thanks for spathes of *Philodendron Sellowii*, very fine.

First-class certificates were accorded for the following—

*Sobralia xantholeuca* (Veitch).—A species of good habit, the stems being of moderate height and clothed to the base with tapering bright green leaves. The flowers are of a very delicate pale yellow tint, and contrast strikingly with the better-known *S. macrantha*.

*Phalenopsis violacea* (Veitch).—A pretty dwarf species with small violet purple-coloured flowers, very distinct in form from many of the genus. The leaves are bright green, smooth, and shining.

*Juncus zebrinus* (Veitch).—A second-class certificate was awarded for the variegated Rush, which has been frequently described in these columns.

*Agave Parryi* and *Yucca Peacocki* (Croucher).—These have been previously certificated by the Royal Botanic Society, and were described on page 375 of the present volume.

**SCIENTIFIC COMMITTEE.**—*Rose Leaves*.—Mr. W. G. Smith reported upon the Rose leaves exhibited at the last meeting, and found no fungi nor insects, but attributed the injury to over-manuring.

*Melon Shoots Diseased*, referred to Mr. Smith for report, were found to be attacked by red spider, acari, nematoid worms, earwigs, &c., which quite accounted for the malformed growth.

*Birch Tree*.—Mr. A. W. Bennett exhibited a vigorous and remarkably hairy shoot from a nearly dead Birch tree, received from Mr. Newman of York Grove, Peckham.

*Campanula Hybrid*.—Mr. G. F. Wilson exhibited a specimen supposed to be a hybrid between *C. pulla* and *C. carpatica*. The foliage was remarked as not being like *pulla*, and Sir J. D. Hooker raised doubts as to its being a hybrid. It was referred to Kew. Mr. Wilson also remarked that *C. nobilis*, *C. alba*, and *C. punctata* were in blossom simultaneously at Weybridge, received from M. Froebel of Zurich. The flowers of *C. nobilis* and *C. punctata* were very distinct in shape, those of *C. nobilis* being very long, and of *C. punctata* bulged out in the middle.

*Iris spectabilis* (*Xiphion vulgare*).—Dr. M. Forster exhibited a malformed flower of this plant, in which the styles had become arrested. The ovary was well developed.

*Coleus Infested by Dodder* (*Cuscuta* sp.).—A specimen was exhibited from Mr. Carter, the parasite having been grown with the plant.

*Gladioli*.—Rev. H. H. Crewe exhibited four forms of *Gladiolus*—viz., *G. illyricus* from the New Forest, *G. triphyllus*, *G. segetum*, and a species found growing in profusion in wet meadows at Gijon (North Spain) associated with *Corbularia citrina*, *C. bulbocoides*, *Narcissus biflorus*. It was referred to Kew. Mr. Crewe doubted whether to refer it to *G. byzantinus* or *G. communis*.

*Mint Fungus*.—Mr. W. G. Smith exhibited specimens of garden Mint infested with the Mint fungus, *Æcidium Menthae*. Mr. Smith stated that as far as his experience went the fungus was chiefly confined to garden Mint. Just now the fungus is extremely common on the Mint exposed for sale in the greengrocers' shops of London.

*Gooseberry Fungus*.—Mr. Smith exhibited fruits and leaves of Gooseberry badly attacked by *Æcidium Grossulariae*. The fungus appears to be widespread and virulent this season, destroying the fruits.

*Primitive Agriculture and Bread-making*.—Mr. Smith showed a hoe mounted with a withy; the blade, 8 inches long, being made of flint. The same instrument if inverted and drawn along the ground by a man would act (when guided with a second withy) as a primitive plough, and make a good furrow. Mr. Smith also exhibited an ancient British millstone together with the flint corn-crushers or mullers as used with it by the primitive inhabitants of this country in preparing the bread made from the small-eared Wheat that was cultivated by them. He also showed a block of iron pyrites and a stone with abraded ends for lighting the fire to cook the wheaten bread, and a knife blade 5½ inches long made of flint, used in ancient times for cutting up food and for other purposes. The same gentleman also showed spindle whorles made from drilled pebbles, such as were used for weaving in ancient British times. The objects had been mostly found by Mr. Smith himself in British camps in this country.

## THE ROSE SHOW.

THE Roses taken collectively were better and more numerously exhibited than might have been expected to be, many growers not being forward enough to cut sufficiently to exhibit. Mr. Turner's were his first this season, and more successful he could not well have been, for he obtained the first prize in every class in which he competed. His blooms could not be said to have that breadth and substance of petal we are accustomed to see, but they were remarkably fresh and bright. Messrs. Curtis, Sandford, & Co.'s blooms were in some instances larger, but in others lacking the variety and freshness of Mr. Turner's. Other trade exhibitors were not up to their usual standard of merit. The first-prize stand of twelve exhibited by Mr. Ridout, gardener to B. Hayward, Esq., was the finest flowers in the Show, and the collections of Teas exhibited both by the trade and amateurs were very praiseworthy.

Class 1, forty-eight Roses, distinct, single trusses, there were six competitors. Mr. Charles Turner was awarded the first prize with fair examples of *Madame Nachury*, Duke of Edinburgh, Miss Hassard, Prince Arthur, Edward Morren, Horace Vernet, Marquise de Castellane, Sir Garnet Wolseley, Villaret de Joyeuse, Elie Morel, Charles Lefebvre, Madame H. Jamain, Le Havre, Oxonian, Madame Victor Verdier, François Michelin, Comtesse de Serenye, Ferdinand de Lesseps, La Rosière, Maréchal Niel, Nardy Frères, Mrs. Harry Turner, Margaret de St. Amand, Prince Camille de Rohan, very fine indeed; *Perle des Jardins*, Sénateur Vaisse, Niphetos, Charles Darwin, Peach Blossom, Marie Baumann, Duke of Wellington, Marguerite Brassac, Bessie Johnson, Madame Marie Verdier, Dr. André, Mdle. Eugénie Verdier, Camille Bernardin, Constantin Tretiakoff, Elise Boëlle, Devienne Lamy, Star of Waltham, Baroness Rothschild, John Bright, Duchesse de Morny.

Messrs. Curtis, Sandford, & Co. were a very close second indeed with a collection of well-built flowers, containing amongst others *Madame Gabriel Luizet*, Etienne Levet, Beauty of Waltham, Sénateur Vaisse, Le Havre, Madame Ducher, new; Alfred Colomb, François Michelin, grand; Marie Baumann, fine; Duchesse de Morny. Mr. B. R. Cant, Colchester, third with a very fair collection.

For twenty-four Roses, distinct, three trusses of each, there were four collections, the post of honour again falling to Mr. Turner, closely followed by Messrs. Curtis, Sandford, & Co. and Mr. Cant, who were second and third respectively. Général Jacqueminot, Duke of Edinburgh, Mrs. H. Turner, Sénateur Vaisse, and Marguerite Brassac were very fine among the dark and red varieties; Marguerite de St. Amand and Marquise de Castellane in the pinks; and three beautiful blooms of the delicate white Tea Niphetos stood out most conspicuous. *Magna Charta* and *Madame Gabriel Luizet*, Mdle. Eugénie Verdier and Beauty of Waltham were very fine in the second-prize collection; and A. K. Williams, Etienne Levet, and Duke of Wellington were the most noticeable in Mr. Cant's third-prize stand.

In the class for twenty-four Roses, distinct, single trusses, there were five competitors staged. Mr. Turner here again, as in the other two classes, was awarded the first prize for a very even and bright collection, containing many of the same varieties as named in his other two first-prize collections. For twelve Roses, distinct, Messrs. Turner, Cant, Piper, Bunyard & Co., and Rumsey were the exhibitors, the prizes being awarded in the order of their names.

There were only three collections of twelve Teas, distinct, which is not surprising after the severe winter they have had to encounter; Mr. Piper being a very good first with *Souvenir d'un Ami*, Jean Ducher, Madame H. Jamain, Marie Van Houtte, *Souvenir de Paul Neyron*, Comtesse Riza du Parc, Marie Opoix, Catherine Mermet, Safrano, Niphetos, Josephine Malton, Marie Guillot. In Mr. Cant's collection *Anna Ollivier*, *Devoniensis*, *La Boule d'Or*, Comtesse de Nadaillac were very fine. Messrs. Paul & Son, The Rose Nurseries, Cheshunt, were third, having a very fine bloom of *Archimede*. The interest taken in these Roses is so intense that visitors linger around them in admiration for a length of time. Messrs. Curtis & Co. were



first with six Roses of any sort of Hybrid Perpetual with magnificent blooms of François Michelin, Mr. Cant second with the lovely bright A. K. Williams, and Mr. Bunyard third with Marie Baumann. Mr. Cant is the only exhibitor for six Teas of any sort Tea or Noisette, and was awarded first prize for a stand of fine Devonensis.

In the classes devoted to amateurs there was a very fair competition. J. B. Haywood, Esq., Woodhatch Lodge, Reigate, was awarded the first prize in the class for twenty-four, distinct, with Marquise de Castellane, Antoine Ducher, Thérèse Levet, Edouard Morren, Madame C. Crapelet, Countess of Rosebery, La France, Etienne Levet, Ferdinand de Lesseps, François Michelin, Le Havre, Abel Grand, Marie Baumann, Mrs. Baker, Countess of Oxford, Charles Lefebvre, Sénateur Vaisse, A. K. Williams, Duke of Edinburgh, Louis Van Houtte, Madame Victor Verdier, Abel Carrière, Général Jacqueminot. The second prize fell to Mr. John Hollingworth, Turkey Court, Maidstone. G. P. Hawtrey, Esq., Aldin House, Slough, was placed third. A very fine bloom of Mdle. Marie Verdier was very conspicuous for its beauty in this stand. There were seven collections.

For twelve Roses, distinct, three trusses of each, Mr. Hollingworth was again a very good first with large and well-built flowers of the following varieties—Ferdinand de Lesseps, Miss Hassard, Marquise de Castellane, Dupuy Jamain, Avocat Duvivier, La France, Madame Gabriel Luizet, Camille Bernardin, Sénateur Vaisse, Mons. E. Y. Teas, and a dark red variety named Princess of Wales. Mr. Joseph Davis, The Square, Wilton, Salisbury, received the second award; and Mr. E. Berry, gardener to the Countess of Leven and Melville, Roehampton House, Roehampton, the third. Five competitors. In the class for twelve, distinct, Mr. Haywood was again a good first; Mr. Joseph H. Pemberton, The Round House, Havering-atte-Bower, Romford, second; and Mr. Charles Davis, The Grammar School, Aynhoe, Banbury, third, all exhibiting well. Seven collections staged. In the class for twelve Roses, distinct, Tea or Noisette, the amateurs outdone the nurserymen in point of number of competitors, there being five collections against three in the corresponding class for the trade. Mr. Joseph Pemberton was a very good first with Homère, Belle Lyonnaise, Souvenir d'un Ami, Madame Willermoz, Bouquet d'Or, Jean Ducher, Madame Bravy, Madame Berard, Rubens, Maréchal Niel, Perle des Jardins, Karoline Kuster. Mr. Charles Davis takes the second prize with a fine lot, having amongst others a very fine-shaped flower of Bouquet d'Or. Mr. Hollingworth third.

For six Hybrid Perpetuals (amateurs) Mr. E. Berry took first prize with François Michelin, Mr. Pemberton second with Souvenir de Pierre Dupuy, a somewhat rough-petaled Rose as shown, and Sir Trevor Lawrence third with Pierre Notting. In the class for six Roses of any sort Mr. Davis was awarded the first prize for six lovely blooms of Bouquet d'Or, Mr. Hollingworth being second with Caroline Kuster, and Mr. Pemberton third.

For six new Roses of 1878 and 1879 Mr. Turner obtained the first prize with Duchess of Bedford, Charles Darwin, Countess of Rosebery, Mrs. Harry Turner, Madame Eugénie Verdier, and Paul Jamin. Mr. Cant was placed second with A. K. Williams, Pierre Carot, Duke of Teck, Bennett's Hybrid Teas Duke of Connaught, Jules Chrétien, and Duchess of Westminster, this latter possessing very much the same depth and substance of petal as Mons. Noman but of a deeper cerise colour.

There were several contributions not for competition, among them being the following—Six boxes of Roses were staged by Mr. Prince, Oxford, three of them containing a large quantity of Moss Roses in variety, and the remainder some beautiful Teas. Mr. Rumsey of Waltham Cross also contributed a large collection of cut Roses, some beautiful buds of Teas, and a box crowded with the old or common Moss Rose was particularly worthy of notice. Messrs. Paul & Son sent 150 Roses in pots, which at this season of the year were a great attraction. These plants were only from 1 foot to 18 inches high, and carried from four to ten flowers, and were deservedly awarded the large silver Flora medal. They consisted of the most popular varieties, among which we noticed a pure white sport of Baroness Rothschild, being of more substance than Mabel Morrison, which is also a sport of this popular Rose, but is unfortunately too thin for any purpose, but Mr. Paul's white sport promises to become a useful Rose that is much needed.

**GROUPS.**—The Society offered three prizes for the best arranged group of plants occupying a space not exceeding 300 square feet. Three competitors appeared, Messrs. W. Cutbush & Sons, Highgate, being accorded the first prize for a very tastefully arranged group consisting chiefly of fine-foliage plants, such as Dracænas, Palms, Maples, and Ferns; and perhaps the only objection that could be urged against it was the comparative scarcity of flowering plants. Clusters of Chrysanthemum frutescens surrounded fine examples of Cordylines, and crescents of Abutilon vexillarium variegatum were also placed near the front, with a fine example of Spiræa palmata and a neat margin of Pteris tremula. Messrs. J. Laing & Co., Forest Hill, were second with a more formal but much brighter group, Lobelias, Gloxinias, Pelargoniums, Spiræas, Begonias, Coleuses, and Crotons being very freely employed; the margin of Adiantums, Lobelias, Gloxinias, Isolepis gracilis, and Coleuses being very pretty. Messrs. Hooper & Co., Covent Garden, were third with an attractive group fairly well arranged, and containing a good proportion of fine-foliage and flowering plants.

**MISCELLANEOUS.**—The large marquee was principally filled with collections and groups of plants from nurserymen, and by their

diverse character the taste exercised in the general arrangement and the satisfactory quality a handsome, bright, and effective display was secured. The General Horticultural Company staged a handsome group at one end of the large tent, the background being formed of large specimen Palms and Ferns, the fore part of the group consisting of a bed of Adiantums and Selaginellas, from which arose Crotons, Gloxinias, Dracænas, and Anthuriums. The central group of small Crotons, superbly coloured and very healthy, added much to the beauty of the group, which was honoured with a large gold medal. Mr. B. S. Williams, Upper Holloway, exhibited a large and choice collection of stove and greenhouse plants, Orchids, &c., comprising many very fine specimens. A silver gilt Flora medal was awarded for the group. Messrs. J. Carter & Co., Forest Hill, staged a large crescent-shaped group of Petunias and Coleuses, the former being well flowered and the latter highly coloured. The Petunias comprised the varieties named—Blue Vein, Stars and Stripes, Purple Prince, Maltese Lace, Queen of the Roses, Double Rosette, and White Pearl, all very distinct and good. A silver-gilt Flora medal was awarded.

Messrs. J. Laing & Co., Forest Hill, exhibited a handsome group of Tuberous Begonias, considered by many to be the finest, both in extent and the quality of the varieties, that has been shown by one firm. A large number of varieties was represented, including many novelties, some of which are described on another page. A silver-gilt Flora medal was awarded. Messrs. H. Cannell & Sons, Swanley, Kent, staged a very handsome group of Zonal Pelargoniums in pots, spikes of Foxgloves and Delphiniums being arranged in lines between them, the edging being formed of the variegated Jacob's Ladder. This group was greatly admired by all visitors, and well merited the silver Flora medal awarded for it. Messrs. Barr & Sugden were accorded a silver Flora medal for a large collection of Iris blooms and many other hardy flowers. A bronze Banksian medal was accorded to Messrs. Osborn & Son, Fulham, for a pretty collection of hardy plants, among which the small Lapageria-like plant Philesia buxifolia, the bright purple Labiate, Prunella grandiflora, and the profusely flowering Campanula Scheuzeri. Messrs. Hawkins & Bennett, Twickenham, were adjudged a silver Flora medal for a group of Adiantum cuneatum, with a few clusters of Zonal Pelargoniums at the back and a line of the same in front, the edging being Selaginellas. Silver Banksian medal was accorded to Mrs. W. Brown of Hendon for a large and attractive group of Pelargoniums—compact, healthy, and flowering most profusely.

Some very pretty groups were contributed by the Royal Horticultural Society, one consisting of Gloxinias and Adiantums being especially admired. A fine group of Tuberous Begonias was also staged, the plants being in very satisfactory condition, and a brilliant array of Zonal Pelargoniums was greatly admired.

A silver Banksian medal was accorded to Messrs. Hooper & Co. for collections of English Irises, dwarf French Poppies, and Delphiniums. The same firm also had stands of dried Grasses in the north-east quadrant. M. Lemoine, Nancy, France, had a group of seedling Pelargoniums, which were highly commended. Messrs. Downie and Laird contributed a handsome collection of Violas, and were awarded a bronze Banksian medal. Mr. Hooper of Bath sent flowers of Carnations, Picotees, and Pansies. Messrs. G. Bunyard & Co., Maidstone, had stands of Canterbury Bells and Sweet Williams; Messrs. Dick Radclyffe an ornamental rockery; Mr. J. R. Pearson, Chilwell, Notts, a superb collection of Zonal Pelargoniums; and a group of Cape Pelargoniums from Chiswick was highly commended.

#### SPECIAL PRIZES.

SEVERAL firms contributed prizes for groups, Begonias, vegetables, and fruit, and in most instances they induced good competition, the exhibits adding materially to the interest and extent of the display. The vegetables were, however, uncommonly abundant and excellent, the Judges experiencing considerable difficulty in many instances in determining the relative position of the collections.

**Groups.**—The General Horticultural Company very liberally offered six valuable prizes for groups, in two classes, for gardeners and market growers respectively, three prizes in each, value from £30 to £15, but strangely enough only two competitors appeared, and neither of these staged first-rate arrangements. It would almost seem that the large amount of the prizes had led to the general idea that the competition would be keen, and consequently many were deterred from entering. Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, Sussex, was adjudged a third prize for a good collection of fine-foliage and flowering plants, but not remarkable for the taste evidenced in the arrangement. Mr. Croucher, gardener to J. T. Peacock, Esq., Sudbury House, Hammersmith, was also accorded a third prize for a group consisting largely of Orchids, many very fine, but not disposed in any elaborate style. A large plant of Echinocactus visnaga was styled "The Savage," and an Odontoglossum vexillarium was termed "Civilisation" by way of contrast.

**Vegetables.**—As already noted a very fine display of these was contributed, a large proportion of the staging in the long tent being occupied with the various collections.

Messrs. Sutton & Sons' prizes.—These were for a collection of vegetables, twelve distinct kinds, any variety, and the competition was extremely good, a large number of very fine collections being staged, there being no less than thirteen exhibitors. Mr. Miles was first with an even collection of well-grown vegetables, comprising very

fine Leviathan Broad Beans, Culverwell's Telegraph Peas, Model Cucumbers, Nantes Horn Carrots, Early White Naples Onions, and Canadian Wonder Beans amongst others. Mr. C. Haines, gardener to the Earl of Radnor, Coleshill House, Highworth, Bucks, followed very closely. Mr. William Meads, Beckett Gardens, was third; Mr. J. Austin, Ashton Court Gardens, Bristol, fourth; Mr. E. Beckett, gardener to J. Plurrie, Esq., Sandown House, Esher, fifth; and Mr. Clarke, The Gardens, Melton Constable, East Dereham, sixth; all staging very creditable examples.

Messrs. Carter & Co.'s Prizes.—There was a very fine display of Peas in the classes devoted to them, and some remarkably handsome examples were staged. Five prizes were offered for four dishes, each comprising fifty pods, to represent Carters' Stratagem, Carters' Telegraph, Carters' Telephone, and Carter's Pride of the Market; twenty exhibitors appeared, thus staging the enormous number of eighty dishes, or four thousand pods. The first prize was accorded to Mr. G. Miles, gardener to Lord Carington, Wycombe Abbey, with uncommonly fine examples, the pods of great size and very full. The second position was accorded to Mr. H. Marriott, Prospect Place, Sherbeck, Boston, Lincolnshire, for collections very close in quality to the first. Mr. T. Bailey, gardener to T. T. Drake, Esq., Shardeloes,

Amersham, was third; Mr. G. Bartholomew, Hildenboro', Tonbridge, was fourth; Mr. John Garland, Killerton, Exeter, was fifth; all the prizetakers being extremely near each other in the quality of the exhibits.

Messrs. Webb & Sons' Prizes.—Three prizes were offered by the above-named firm for six distinct kinds of vegetables, and, like the other classes noticed, the competitors were numerous and the quality of their exhibits very satisfactory. Mr. W. Meads was first with fine Nantes Horn Carrot, White Naples Onions, Suttons' Telegraph Cucumber, Culverwell's Telegraph Pea, Canadian Wonder Bean, and Improved Lapstone Potato. Mr. Miles followed closely, Mr. Haines being third. There were nineteen collections staged.

Messrs. Rivers & Son offered a prize of £2 2s. for the best dish of six Lord Napier Nectarines. There were three competitors—Mr. C. Williams, The Gardens, Lower Eaton, Hereford, being the successful exhibitor, staging large, superbly ripened, and richly coloured fruits.

Messrs. Webber & Co., Covent Garden, offered prizes for the best example of packing fruit, the competitors to dispatch the packages from their gardens direct to Kensington, to arrive on the morning of the first day of the Show. There were only two entries. Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim, Woodstock,

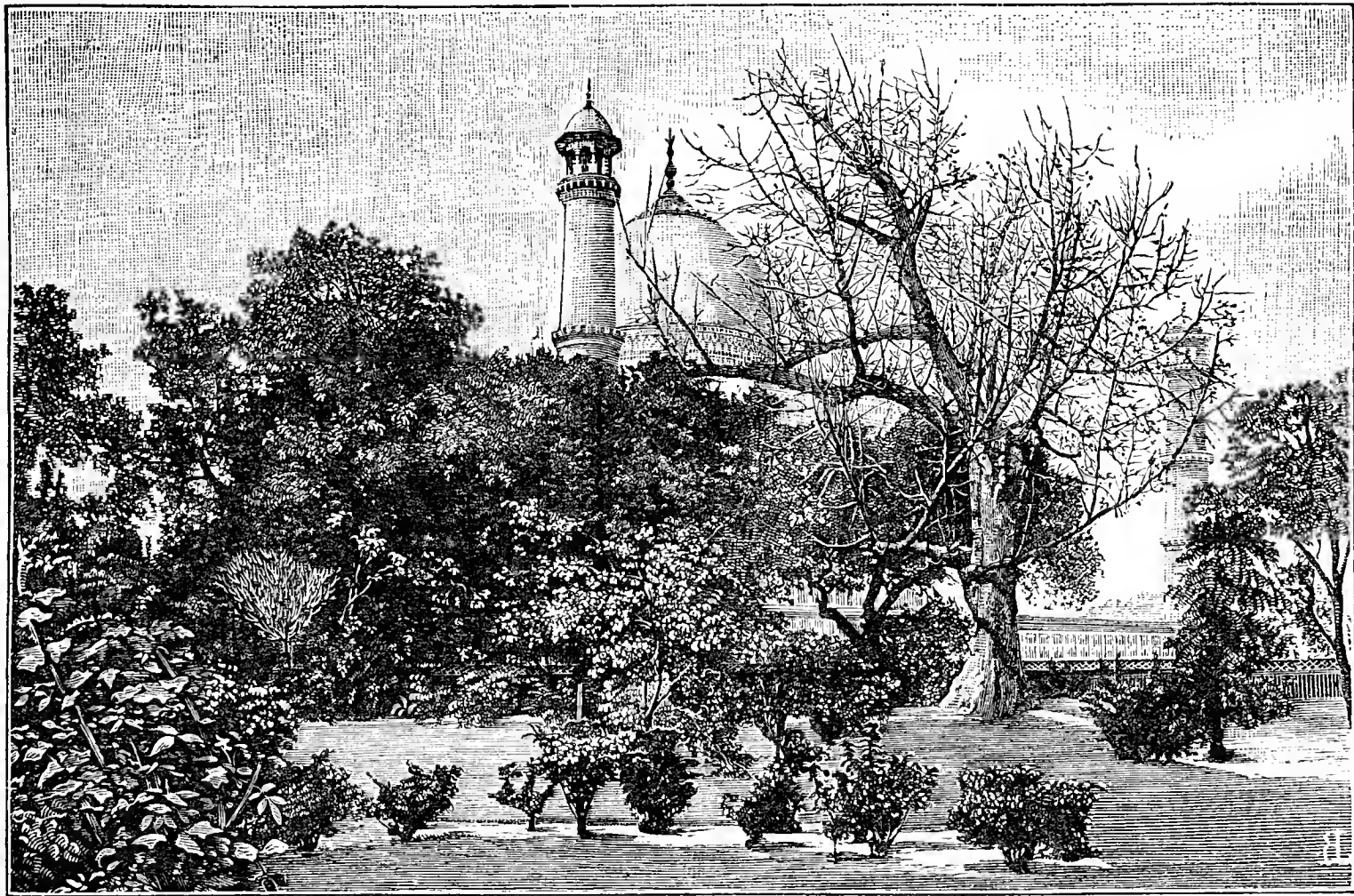


Fig. 120.—TAJ GARDENS, AGRA. (See page 534.)

Oxon, secured the chief prize with fine Grapes, Peaches, and Strawberries in shallow boxes. For the two former a thick layer of moss was placed in first, then a layer of cotton wool covered with tissue paper, upon which the fruit rested firmly and closely packed in the centre. The Strawberries were in leaves upon wool. Mr. A. Waterman, Preston Hall, Aylesford, had similar fruit packed without the moss, the tissue paper surrounding each bunch of Grapes and single fruit of the Peaches, the Strawberries being each wrapped in a leaf. In the first-prize collection the fruit was in excellent condition, the bloom upon the Grapes being very slightly rubbed.

#### THE PELARGONIUM SOCIETY'S SHOW.

VISITORS to previous exhibitions of this Society have, perhaps, seen a more satisfactory show than on this occasion both in regard to extent and quality; but taking the season into consideration most of the sections were very fairly represented—indeed, some handsome collections were staged in several classes, the Show and Zonal types being especially strong and well flowered. The Fancy varieties and the Ivy-leaf section were not in great force, but the cut blooms were all that could be desired.

*Show Varieties.*—These were numerously represented, mostly in fine condition. Mr. Wiggins, gardener to H. Little, Esq., had the best six specimens, even and well grown. The varieties were Victory, Illuminator, Jeanette, Magnificent, Prince Leopold, and Setting Sun. Mr. C.

Turner, Slough, was a close second, the plants not quite so large, but the blooms of unusual size and very bright; Claribel, Venus, and Mabel were very fine. The third prize was withheld. For eighteen specimens Mr. J. Wiggins was again first with an excellent selection of varieties, including Amethyst, Faust, Hermit, Christabel, Fortitude, Rosalind, Ritualist, Dauntless, and Superb in very fine condition. Mr. C. Turner again followed closely with a similarly fine selection; Joe, Constitution, Virgin Queen, Valiant, and Mountain of Light being noticeable, in addition to those named in the previous collection. Mr. Hammond, gardener to F. Hunt, Esq., Stamford Hill, took the third position. For nine specimens of the decorative section Mr. C. Turner secured the first prize with well-flowered examples; Kingston Beauty, Quadroon, Digby Grand, and Duchess of Bedford being particularly fine. Mr. J. Wiggins was second with neat specimens, Miss Bradshaw Improved being in very fine condition; Messrs. J. Hayes, Edmonton, taking the third position with smaller but freely flowered specimens. For eighteen specimens of the decorative section Mr. Wiggins was first with very good examples of Lucie Lemoine, Nellie Hayes, Princess of Wales, and Duchess of Edinburgh among others. Messrs. Hayes were second, their best plants being Olivette, Decorata, Madame Favart, and Triumphans.

*Fancy Varieties.*—Three collections only of these varieties were staged, and only two of these were of good quality. Mr. Turner was first with six specimens of moderate size, but very healthy and admirably



owered. The varieties were Princess Teck, Ellen Beck, Mrs. Hart, Lady Carrington, Fanny Gair, and Mrs. Popc. Mr. Wiggins followed with good plants, but a less even collection. The third prize was withheld.

*Zonal Varieties.*—These were particularly fine in several of the chief collections; the plants well grown, the flowers numerous, and the trusses large. For nine plants in 8-inch pots Mr. John Catlin, gardener to Mrs. Lermite, sen., was an excellent first with even specimens, remarkably well flowered. Alice Burton, pink; Cymbeline, scarlet; and Fanny Catlin, salmon, were very fine. Mr. J. Weston, gardener to D. Martineau, Esq., Clapham Park, was placed second with much looser but fairly good plants. Mr. Weston was also accorded a second prize for eighteen single Zonals. Mr. Catlin was first with nine double-flowered Zonals, staging very neat and compact specimens of Gorgeous, Lively, M. Thibaut, and Enchanting. Mr. J. King, gardener to G. Simpson, Esq., Wray Park, Reigate, was a good second with a bright collection, including several excellent varieties. Mr. W. Meadmore, Romford, was third with smaller plants, but in good health. There was an extensive display in the class for eighteen double Zonals, Mr. J. King securing the chief prize with an admirable selection of healthy plants; Mr. Catlin followed closely, and Mr. Meadmore took the third position.

*Ivy-leaf Varieties.*—Mr. Wiggins was first with the only collection of these Pelargoniums, the plants being very healthy and the varieties well selected. Sylphide, Mons. Dubus, A. F. Barron, Gloire d'Orleans, Sarah Bernhardt, Madame H. Rarat, Perle, Seedling 29, and Madame Emile Gullé were the varieties.

*New Varieties.*—Class 1, for Hybrid Pelargoniums. First, Messrs. Cannell & Son with leaves similar to some of the Cape species, the flowers being large, of good form, and purplish mauve in colour. Class 2, for Show varieties. A.—Three varieties. First, E. Foster, Esq., Clewer Manor, Windsor, with Margaret (Foster), large flowers, good form; the lower petals pink, very dark maroon upper petals, white centre. Royal Review (Foster), flower of medium size, even and fine form; lower petals scarlet streaked with a dark shade, upper petals very deep maroon, white centre; and Zealot (Foster), similar to the last, but with a larger flower, and without the streaks in the lower petals. B.—First, the Rev. A. Matthews, Grimby, Leicestershire, with Eva, fine flower, soft pink lower petals, dark crimson upper petals, good form and substance. Russell similar to Royal Review, but more salmon in lower petals, all of the exhibitor's raising. C.—First, Mr. Wiggins with Magnet, very bright scarlet, excellent form. Class 3, for Fancy varieties. A.—First, Mr. Turner with Sims Reeves, Florence Taylor, Queen of the Hellenes, excellent varieties. Class 4, for decorative varieties. A.—First, Messrs. J. J. Hayes with Ruby, Grand Lilas, and Mr. Ashby.

*Cut Flowers of Pelargoniums.*—Mr. C. Turner secured the first prize for thirty-six blooms of the Show varieties, with excellent examples very large and richly coloured, the varieties being best in commerce. Mr. Meadmore secured the chief prizes for twenty-four single and the same number of double Zonal blooms, very fresh and bright. For thirty-six double Zonals and twelve Ivy-leaved varieties Messrs. H. Cannell & Son, Swanley, carried off the principal honours with highly creditable blooms of very fine varieties. Mr. G. Duffield, Winchmore Hill, was first with large and bright blooms; Mr. George, Putney Heath, taking a similar award for twelve Ivy-leaf varieties in fine condition.

Certificates were awarded for the following new varieties:—

*Duke of Albany* (Foster).—A handsome Show variety, with very large flowers of good substance and excellent form. Lower petals scarlet-salmon, upper very dark maroon with a narrow edge of scarlet, and a white centre. Exhibited by Mr. Turner.

*Mr. Ashby* (Hayes).—One of the decorative section, being profuse in flowering, scarlet with a pinkish tint at the base of the petals, the upper being veined with a darker shade. Shown by the raiser.

*Annie Hemsley* (Hemsley).—Also a decorative variety, with soft salmon-scarlet-coloured flowers edged with white, the upper petals being blotched and veined with dark scarlet. It is a very free and attractive variety. Exhibited by Mr. Little.

*The Abbot* (Foster).—Another fine Show variety of similarly good form. Lower petals scarlet; upper very dark, nearly black, and possessing a peculiar velvety gloss. Exhibited by Mr. C. Turner.

*Magnet* (Wiggins).—A Show variety of great promise. Flowers large, smooth, of good substance, bright scarlet; the upper petals having a dark blotch. One of the brightest-coloured varieties. This and the two following were shown by Mr. Little.

*Superb* (Beck).—One of the Show type. Flowers of great size, bright crimson; very dark upper petals, white centre. Free and effective. Exhibited by Mr. Little.

*Britomart* (Beck).—A Show variety. Soft crimson lower petals; upper darker, with narrow margin of white.

*Belle du Jour* (Lemoine).—One of the Decorative section, with double flowers produced very freely. Exhibited by M. Lemoine of Nancy, France.

#### THE EVENING FETE.

THE weather proved very favourable for the Fête on Tuesday, and in consequence it was a most brilliant success, there being a remarkably large attendance of visitors. All the tents, the conservatory, and the upper part of the grounds were thronged throughout the evening. The grounds were illuminated with Messrs. Siemens' electric lights and Messrs. Z. D. Berry's coloured oil-lamps, the latter taste-

fully disposed amongst the branches of the trees, in wreaths round the trunks, and in festoons over the Lily tanks. The tents were lighted by the Anglo-American Brush Electric Light Corporation, the north-east quadrant arcade with the Maxim Incandescent Light, and the north-west quadrant by Messrs. Siemens Brothers' electric light. The bands of the Second Life Guards and the Royal Horse Guards were in attendance, and a performance by the Royal Criterion Handbell Ringers and Glee Singers was given in the conservatory during the evening. All the arrangements were highly satisfactory, and the fête may be fairly characterised as one of the most pleasing and successful the Society has held.

#### THE TAJ GARDENS, AGRA.

WE submit another view of these gardens that were referred to last week, and it is pleasing to observe that gardening is being so well and intelligently carried out in this ancient historical old station, once for magnificence and commerce the first city of India. It was the court of the great Akbar nearly three hundred years ago, on whose palace a thousand labourers were employed for twelve years at a cost of three millions of rupees. But the splendour of this former place has departed, and the gardens for which it was remarkable are changed with the lapse of time. From this city to Lahore, a distance of five hundred miles, is said to be the finest avenue of trees in the world, the road being canopied with foliage the entire distance.

In the Taj Gardens that have been so much improved of late, we are informed there is a large variety of trees, shrubs, and plants from nearly all parts of the globe. At the entrance to the right there is a Conifer plantation, and on the left there is a palmatum, both thriving equally well. One of the main points in the new arrangements has been to have as much lawn as possible. The designs are simple. Everything pertaining to fantastic, angular, and intricate forms and shapes has been avoided. All designs of beds which would be likely to clash with or pretend in any way to imitate the floral and ornamental designs which are so conspicuous in all the buildings have been carefully eschewed, and the result is a garden at once attractive and enjoyable. The picturesque character of this garden is shown in the engraving.

This view having been taken from the circular Rose garden. The naked tree is *Bombyx pentandrum*, and is over three hundred years old. It measures 45 feet round the base. The hole in the upper part of the trunk is where a large limb was blown off in a storm fifty-two years ago.

#### WHAT PLANTS USE.

(Continued from page 484.)

**WATER.**—Having disposed of air, light, and heat, water may next be referred to. Water forms three-fourths of the whole bulk of plants. It conveys the food which the plant finds in the soil to the leaves, and thence to every part of the plant. It is evaporated from leaves in immense quantities. Many actively growing plants under bright sunshine and a high temperature evaporate more than their own weight of water daily. Chief among these are Vines and Peaches, especially the former. This fact needs pressing home on the minds of cultivators, for it is only by understanding that Vines are ceaselessly pumping water from the soil that a proper idea of the amount of water that must be applied to borders can be formed. We are very decidedly of opinion that fruit trees, and more especially those under glass, often fail for want of a proper amount of water. No matter how thoroughly a Vine border may be soaked with water, if the drainage is as it ought to be, the soil firm and yet porous, one week of hot dry weather will render a further application necessary. Badly drained borders are not referred to. These remarks apply to good borders filled with roots. New borders which are as yet unfilled, or old borders from which the roots have wandered, do not come under the rule. Not only is the soil dried by the extraction of water by roots, but a by-no-means inconsiderable quantity escapes by evaporation. That which is drawn by the roots can only be supplied by fresh applications; but that which is drawn by evaporation may be, to a great extent, prevented from escaping by proper mulching. Where the rainfall is great or the water supply ample, mulching may be omitted, but where either are insufficient it becomes of the greatest value. Its application, especially on thin soils with a hard subsoil, often means success, when without it success would be quite impossible. Mulching is generally associated with stable litter, and is therefore neglected because the untidy appearance of litter cannot be tolerated. Leaf soil, spent tan, cocoa-nut fibre, or even siftings of soil from under the potting bench, are of the extremest value for mulching, and may be used liberally even in the flower garden without offence, but the opposite rather; for the use of such will induce



the plants to grow so much more rapidly that with an inch or two of such material over the surface, beds and borders will be much more speedily filled than without. Indeed in hot seasons it often happens that on thin soils many beds and borders get thinner instead of filling up. Surely a mulching of even roughish material, which would speedily become hid, is much better than this. We have gardened when without heavy watering, requiring much labour, or thick mulchings, such plants as *Violas* and *Calceolarias* failed to grow at all, but an inch of decayed sifted manure alone over the surface, caused a luxuriant growth.

The amount of water evaporated by trees against hot walls is often exhausting, and when this is accompanied by dryness in the soil much mischief follows. The attacks of red spider are oftener caused by aridity in the soil than the air. It is only, or chiefly, when trees are stinted of water that these do much



Fig. 121.—*Gillenia trifoliata*. (See page 529.)

mischief. Luxuriant foliage seldom suffers; stunted foliage is often destroyed.

Mulching is preferable to watering even where water is plentiful and can be easily applied. Evaporation not only carries the water out of the soil, it carries the heat too. Water may even be frozen by its own evaporation under certain circumstances. Let anyone fill a pitcher with water on a hot day and wrap a towel round it. Place the pitcher in a shady but airy spot, and keep the towel constantly wet. Place a thermometer in the water, and you will be convinced that heat is carried away by evaporation. Now we seldom want to lower the heat in the soil. A cold soil is against the well-being of all plants that need the artificial help of glass houses or sunny walls. A cold soil will counteract the influence of warm air. Plants are benefited by warm air because it warms them, but it will, to a certain extent, fail in this if the ascending sap be cold; and as evaporation from the soil produces cold, we ought to prefer mulching to watering, and when watering becomes a necessity mulching ought to follow in order to

prevent the necessity of its re-application and the escape of invaluable heat.

It may seem a strange thing to advocate, but we say that watering should only be done in showery weather. It often happens that there are a few showery days consecutively, and yet not more than enough to damp the surface and reduce evaporation to a minimum. Then is the time to supply water. In hot weather artificial irrigation, unless it be very thoroughly done, is useless and worse, for the air soon licks it up. When the air is damp, and yet the rainfall trifling, is the time to irrigate with the greatest success. At the same time irrigation when thoroughly done—that is, when the ground is flooded—is a great help on dry soil during drought, especially if mulching be applied immediately after. In the kitchen garden mowings from lawns and other short grass are of great value, but even when these are not available a loose layer of soil will do much to prevent evaporation. The free use of the hoe, whenever the soil is dry enough on the surface to be easily worked, will accomplish this to a great extent.

So many excellent directions for watering plants in pots have appeared from time to time in the *Journal* it is not necessary to consider it particularly in this place. It may, however, be pointed out that mulching might more frequently be applied to plants in pots, especially in summer. Plants that are outside, and even those in houses, become dry at the root in a very short time, and often need water twice a day. This means a very rapid evaporation, and consequently a very low "bottom heat." In many instances a mulching of rich manure, accompanied by plunging in ashes, would do much to prevent this, and also feed the plants, thus proving doubly beneficial. Evaporation from pots cannot well be avoided altogether, but glazed pots are better in this respect, and in others, than common ones. The idea that the porosity of the latter is beneficial is now an exploded theory. To prevent evaporation from pots as much as possible watering should be done whenever possible in summer time in the evening.

For irrigation purposes, whether for a single pot or broad acres, rain water is best; after that comes pond, brook, or river water, and lastly spring. It is seldom that rain water is harmful, but it sometimes happens in the neighbourhood of chemical works that it is impregnated with noxious acids and other matters to an extent that makes its repeated use destructive to plants. Sometimes brook and pond water contains iron to a hurtful extent; but this can be seen, for then the water makes a red deposit which betrays the presence of the iron. Brooks and rivers which flow through fertile districts are often positively enriching, but generally speaking the plant food contained even in drain water from fertile fields is so small that it may be left out of account in estimating its value for garden purposes, although benefit has often been derived by meadow land from such waters. Some spring water is very suitable, but it often contains lime, and to many plants, Heath plants more especially, lime is very hurtful. When such waters are used for syringing it leaves a coating of lime on the leaves, fruit, &c., and this is very objectionable. Water containing lime may be made nearly pure by boiling it; even exposure to the air will cause much of the lime to settle. Where quantities of water are required large tanks are necessary if the water is to be improved by this means. In many instances lime is present in the form of bicarbonate; in this state it is soluble, and does not separate from the water. If newly slaked lime or lime water is added the added lime seizes on part of the carbonic acid and the whole becomes carbonate of lime, which is insoluble and may be readily filtered from the water. Waters containing iron may be purified by exposure, and especially so if it is collected in large tanks, from which it can be run without disturbing the deposit. Generally speaking, however, it is far better and far cheaper in the end to build brick and cement tanks in the ground where it may be run off or pumped as required.—SINGLE-HANDED.

(To be continued.)

#### COTTAGE GARDENING—MAKING THE MOST OF SPACE.

A LITTLE garden sloping from the dwelling house southwards to the road, but raised above the level by a low stone edging and protected by light painted open wooden fencing. Looking upwards the house wall exhibits a crimson Boursault Rose tree in full blossom; an Ayrshire climber close by, for the first time weakly even in foliage; a Moorpark Apricot, formerly an ample bearer, now much shattered, and to be replaced in autumn by a profitable Plum. At the house door, approached by low steps, bushes of the old crimson China Rose, plants of common Musk (*Mimulus moschatus*), tufts of *Echeveria* with spikes of brilliant orange-coloured flowers, patches of *Mignonette* here, and there bushes

of Stonecrop well trimmed in; in the middle just between the windows a very large pot of *Alyssum maritimum*, a smaller one also at each end of the border, which like the three other borders is about 2½ feet wide, and a little way in front on the gravelled space where never a weed is to be seen two pots of *Saponaria ocymoides*. These five pots are masses mound-shaped of white and rose-coloured blossoms, yet exceedingly airy and elegant, the pots being quite outgrown and overgrown on every side, and the general effect most attractive.

The border under the house wall is in spring full of Snowdrops now at rest. In the centre of the gravel space is a circular bed gorgeous with Crocuses in their season. Now first within the neat Box edging comes a planting of dark blue Lobelias, the rest filled this year with scarlet Geraniums. The west border, besides the little Box edging common to the four borders, has a low-growing Privet fencing 22 or 23 inches high. Along the foot of this, indeed in all the borders, rows of wild Primroses nestle round with sweet-scented wood Violets and wild Hyacinths thickly studded between. The east border is bounded by a raised grass edging falling gently to the broad way that leads through a gate at the side of the garden up to the house and round to the back entrance. On each side of this gate grow some tall white Rose trees, Nature's own standards—several bare stems, then dense heads of darkest green, the white buds innumerable just bursting into bloom. On the right hand, well sheltered from the east, is the tiniest triangle not 2 yards either way; where at the foot of these standards are tufts of Primroses, wood Hyacinths, and quantities of flowering Lily of the Valley, out of bloom now.

Once more. Within the garden I have endeavoured to describe are to be found half a dozen Fuchsias, white, crimson, double—vigorous plants for autumn flowering that have stood the last few winters protected only by a covering of ashes. Petunias have been raised from seed sown in the open border sheltered from frost by a brick or two; these with rows of Victoria Asters and African Marigolds will make the autumn display; now Pansies, double red Catchfly, Mimulus, Feverfew, yellow Persian Roses, yellow Stonecrop, and two other plants about whose names I am uncertain, with one or two double Pinks to be succeeded soon by Clove Carnations, a little dwarf Hybrid Perpetual Rose, cover but do not overerowd the ground of this always healthy and admirably managed garden.

I should say that the possessors are intelligently devoted to their garden, finding time amidst home duties late and early to attend to the wants and habits of their plants. For Pelargoniums and Lobelias they have an empty room in the next cottage. The Fuchsias and Echeverias stood in the open ground. Little or no manure is used in the garden: a more certain result, it is found, is obtained by now and then taking away some surface soil and replacing it by earth in which Potatoes have been grown and which for the Potatoes had been well enriched.

On the house wall facing the east a Pear tree is grown, fruitless this year; a very fine Bigarreau Cherry running round even to the north is loaded with fruits.—A. M. B., *Mid-Lincoln*.

[We are informed that this garden is worked entirely by the daughters of the owner, and it would be an advantage if more of the daughters of England were to engage in similar healthy and pleasant pursuits, and make cottage homes generally bright and cheerful.]

#### CHAPTERS ON INSECTS FOR GARDENERS.—No. 25. NEW SERIES.

UNLIKELY as the circumstance might seem at first, considering that the study of such tiny beings appears a very dry subject indeed, the history of mites is not without its comical aspect. The observers of their habits have been perplexed by some of the results of bringing the microscope to bear upon them, since this has at times shown mites in a form or position that seemed mysterious. For instance, a mite has been noticed twisting itself about until the skin cracked, and a very different mite in aspect came forth—an example, some said, of a mite being the prey of another species almost as large as itself. Afterwards it was supposed that in this and similar cases there was only a transformation from the larval to the perfect stage, rapid and not gradual. And in several of the groups (a specimen of which we show) the larva of a mite is unlike the adult mite. Then, again, amongst the Hypopidae some species have been thought to undergo at least six or seven changes before reaching maturity, and brisk have been the discussions as to the nature of these, and whether the possession of six legs only is always significant of a larval condition. The water mites may be dismissed with the remark that it is believed they are mostly carnivorous, attacking larger insects or else feeding upon very diminutive infusoria.

The beetle mites with a horny thorax, that is of a blackish or brownish colour, are believed to be as plentiful in England as they are in France; but only two or three species have been noted as natives of these islands, the best known of which is *Damaeus corticulatus*, to which has been given the English name of the "black stone tick." These mites may be found in parties during the winter months under pieces of Pear bark that have been loosened by some means; in warm weather they scatter about on the trunks or branches. If it be necessary to interfere with these mites, as Curtis supposed, the winter would be the period to catch them *en masse*; but Boisduval pleads in their behalf, and certainly on his showing they are friends not foes to horticulture. He has seen them busily engaged in devouring aphides, and thrips in all its stages, and believes that these and similar pests are the natural food of the black stone tick. About Paris the species has been taken in hothouses as well as on fruit trees, though not in England to my knowledge. The young tick has only six feet; the adult is as large as the head of an average pin, and it breathes by means of two curious tubes in the neck. It has no eyes seemingly; those organs are in fact lacking amongst the beetle mites generally. Others of them are partial to moss, especially in damp spots, and specimens have been taken at Spitzbergen, proving that they are a hardy race.

The family of the Tyroglyphidae have received the popular appellation of cheese mites bestowed upon them by some naturalists. This is incorrect, because the substance indicated only furnishes food to a part of them. Thus one species is familiar to every collector of insects as the devourer of the fleshy or fatty portions of specimens kept in boxes and cabinets. Other species have their points of interest to the gardener. These mites have soft and smooth bodies, with jaws or mandibles that in shape resemble the claws of a crab. *Rhizoglyphus echinopus*, with no melodious name, is injurious, though not to a great extent; it is a white globular mite, fond of secreting itself amongst the scales of Liliaceous plants, especially during autumn. It has often been detected upon the Hyacinth, and Mr. Murray thinks the species also resorts to the roots of various plants. Like many of their brethren they will crawl off the substance they frequent on to the skin of any human being near, causing an irritation though not making punctures.

Another species in the above genus is of importance from its presumed connection with the Phylloxera; Mr. Riley, reporting upon it from the United States, asserted that when young this mite imbibed the juices of roots injured by the Phylloxera, and afterwards attacked and ate the root-haunting type of this foe of the Vine. Hence some suggested that if the species *R. phylloxerae* could be naturalised in Europe it would check the increase of a formidable Vine pest; but a French student of these and other mites discovered them upon the roots of the Vine, and he could not perceive that they interfered at all with the Phylloxera. Other insects in the genus *Rhizoglyphus* seem restricted to vegetable food, and so it is highly probable that the mite in question only comes to feast upon the fluids that are exuded through the proceedings of the Phylloxera, with which it does not meddle. *R. Rostro-serratus* is about the size of a cheese mite, grey in colour, and with a curious series of humps along the back. It occurs in large parties upon cultivated Mushrooms, which, in the course of a day or two from their being first infested by the mite, become black and putrid.

The very abundant cheese mite we mention only briefly. It bears also the name of *Tyroglyphus siro*. Gardeners, like other folks, occasionally make a dinner or a supper off bread and cheese, and many like the latter all the better should it be "mitey." But some naturalists have endeavoured to show that by the promiscuous swallowing of cheese mites there may be originated divers internal complaints in the human subject. It is possible that in very exceptional cases these may manage to live in the stomach and multiply there. Ordinarily they are doubtless soon digested, and no harm ensues. As, however, a rather too accurate observer has stated that the devourer of mitey cheese eats not cheese only but "eggs of mites old and new, larvæ, cast skins, perfect mites, excrement in minute greyish balls, and spores of microscopic fungi," the savoury article has its unattractive if not its unwholesome aspect. A relative of the cheese mite taken in North America, *T. malus*, is useful because it devours the mussel scale of the Apple; it is a long-bodied, smooth, short-legged mite. In Ceylon *T. translucens*, a very small species, subsists on a coccus that occurs upon the Coffee plant. Mites, it may seem amusing to state, have peculiarities in their modes of progression. Those species just described walk along deliberately with the head lowered between the first pair of legs; the sugar mites run briskly; and the mites in the genus *Cheyletus* move by a succession of jumps, holding the while the

jaws extended so as to seize anything they may be inclined to attack. The Cheyleti lead a wandering life, hunting up other mites that are feeding in parties, amongst whom one of these makes itself quite at home, destroying speedily a goodly number, for it only sucks the juices of its prey. It was found to be quite impossible to keep several Cheyleti together in a box, as combats took place at once and continued until but one survived. A very pretty mite under the microscope is Glyciphagus plumiger, with circlets of radiating hairs; it hides in walls, especially those that are damp. The food is at present unknown.

There has been recently much discussion concerning the influence of electricity upon vegetation, more particularly in reference to its power of inducing rapid growth or increasing

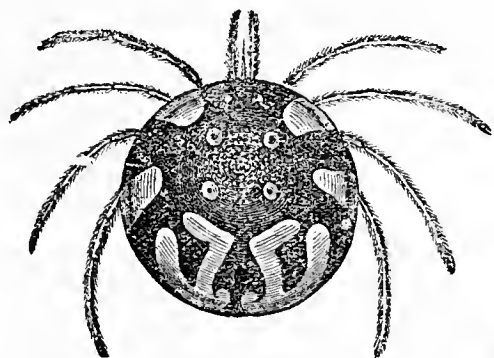


Fig. 122.—Watermite (Hydrachna) magnified.

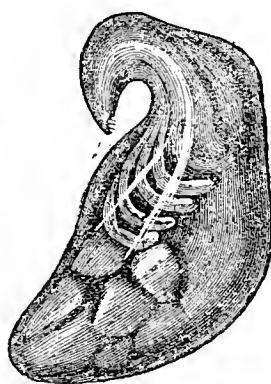


Fig. 123.—Larva of Hydrachna magnified.

productiveness. It has also been supposed by some who call themselves men of science that electricity, rightly managed, could produce both animals and plants. By the constant operation of an electric current upon a stone moistened with an acid solution, an experimenter in this line several years ago succeeded as he thought in creating some new mites, one of which became the subject of much comment under its name of *Acarus horridus*. But this "horrid" creature, it was ere long discovered, was no novelty at all, it was merely a *Tyroglyphus*, the portrait of which the artist had somewhat improved!—J. R. S. C.



#### KITCHEN GARDEN.

A GOOD breadth of Parsley may now be sown, and where it is much in request during winter some should be sown in a pit to be covered with glass when cold weather commences. Plants from previous sowings must be thinned to about a foot distance. A good sowing of Turnips should be made for autumn and early winter use. Early Stone or Six Weeks, Veitch's Red Globe, and Orange Jelly are suitable varieties. Where young Carrots are much required the Early Horn section may yet be sown, and will come in useful for late use. Another sowing of French Beans may be made if desirable on a warm border; also Peas of the earlier varieties. The earliest crops of Peas will soon be over, and the ground being forked over no unnecessary delay should elapse in occupying it with Broccoli and such vegetables as are most in request for winter. A liberal sowing of Lettuce must be made from the 10th to the 14th of next month, giving preference to the Cos varieties, such as Hicks' Hardy White, Brown Cos, and Bath or Brown Sugarloaf, as many of these plants will be required for lifting into frames or elsewhere for late autumn. About the same time the main crop of Endive can be sown, Round-leaved Batavian, Green Curled, and Picpus being suitable. Leeks should be planted out in well-manured trenches and liberally supplied with water in dry weather. Afford copious supplies of water and liquid manure to Celery, earthing up the earliest crop, and planting out for succession. As the gathering of succeeding crops of Peas is completed the ground can be utilised for late Celery, not omitting a large breadth of that excellent little Cabbage Rosette Colewort. A reservation must be made of ground for Winter Spinach. No time should be lost in placing out Cauliflower plants to produce heads for

autumn use, also the autumn and early winter Broccoli—such as Veitch's Protecting and Snow's Winter—affording a good and preferably a sheltered situation. Preparation will soon have to be made for sowing the Tripoli section of Onions. The superiority of these for early summer use being well known, it is only necessary to note the fact, so that due consideration may be given this important crop. Ground that has been occupied with spring-planted Cauliflowers will be cleared in time to be followed by Tripoli Onions. Take up Shallots as soon as they indicate ripeness, and store them in bunches or otherwise. Keep down weeds, and ply the hoe freely in favourable weather between the rows of growing crops that are not mulched. Attend to nailing and tying up Tomatoes as they advance in growth, removing all side shoots when the requisite number of fruiting shoots are obtained. Train, thin out, and stop ridge and Gherkin Cucumbers, and do not allow those or Vegetable Marrows to have insufficient water.

#### STRAWBERRIES FOR FORCING.

For forcing, whether early or late, the runners cannot be layered too soon. Layer them into the pots the plants are intended to fruit in, or into 3-inch pots, and when well rooted detach them and transfer them to the large size. We prefer the latter method as most convenient, the pots not being crooked but filled firmly with turfy loam chopped moderately small, adding about a sixth of well-decayed manure and a twentieth part of bone meal or Clay's fertiliser. A row of pots is half plunged in every alternate space between the rows of plants that were placed out early the previous season to afford strong runners. A small hollow is made in the centre of each pot, and the runner introduced and securely pegged in position. By having the pots in alternate rows sufficient runners are obtained from the two rows on each side to occupy the pots arranged closely together, and the watering is rendered easy, and gathering the fruit is practicable without disturbing the pots. It is important that runners be layered from fruitful plants. Water as necessary to facilitate rooting. After trying most kinds we find La Grosse Sucrée, Vicomtesse Hericart de Thury, and Keens' Seedling the best, as named for early forcing, President for succession, James Veitch for size; Sir Charles Napier, Dr. Hogg, British Queen, and Cockscorn being excellent for late forcing.

#### FRUIT HOUSES.

*Vines.*—Late Grapes, particularly those that have to hang during the winter months, will require more thinning than those for autumn use, otherwise they will not keep in good condition. The laterals should not be allowed undue extension, except where there is sufficient space to avoid interfering with the principal foliage. Vines bearing Grapes that are swelling must have liberal supplies of water or liquid manure, both for inside and outside borders. Maintain a moist genial atmosphere by damping the surface of the border or the mulching material; also damping available surfaces at closing time with guano water. High and dry borders do not as a rule in seasons like the present receive sufficient water, as healthy Vines in active growth require a very large amount, provided the drainage is good. Ventilate freely with a temperature of 70° to 75° by day artificially where Grapes are colouring, and 80° to 85° or 90° from sun heat, employing sufficient fire at night to prevent the temperature falling below 65°, as Grapes ripened in a low temperature do not keep well, and are not so highly flavoured as those ripened in a brisk heat. Early Vines from which the Grapes are cut may be syringed every evening, in order to preserve the foliage as long as possible, and allow a moderate extension of the laterals, for if the Vines are permitted to rest too soon second growth will commence. Keep the border fairly moist, and allow a free circulation of air night and day.

*Melons.*—As houses become cleared of fruits remove the plants and make the necessary preparations for collecting the fermenting materials, if such be employed for bottom heat, and soil also previous to a fresh start. The old soil must be entirely removed and the house cleaned. Where bottom heat is supplied by fermenting materials only a portion of them need be removed and a little hot dung worked in, which will revive the bottom heat sufficient for this time of year. Pits and frames may be treated similarly, for unless the plants that have fruited are vigorous it is better to remove them and supply healthy young specimens than to rely on weakly and probably



insect-infested plants for a second crop. Plant on ridges or hillocks rammed down firmly, and maintain a moist atmosphere. Pot seedlings, and keep them near to the glass to ensure a sturdy habit. Feed plants liberally that have swelling fruit, and keep the growths thinned. Fruits that are ripening should be exposed to a free circulation of air and plenty of light. Cracked fruits may be guarded against by withholding water from the atmosphere after the fruit commences ripening, and afford it to the roots only to prevent flagging. Keep a sharp look-out for canker at the collar, and apply freshly slaked lime to the affected parts. Continue to set the flowers daily, and directly the fruit is swelling earth up the roots. Plants in frames do not set fruit freely, sometimes owing to the atmosphere being too moist, which renders the pollen inert; a little ventilation constantly will remedy the defect.

#### ORCHARD HOUSE.

Peaches, Nectarines, Plums, and Pears have their fruits swelling. In order to encourage this as much as possible afford rich mulchings and liquid manure, this being more especially necessary where the trees are carrying full crops and the roots are restricted to the pots. Examine the trees frequently, and disbud or pinch back strong shoots, preserving as far as possible the symmetry of the trees, but avoid removing too much foliage at one time, as this is calculated to render the trees unhealthy. Maintain a moist genial atmosphere by syringing every evening when the weather is warm, closing the ventilators somewhat early when it is likely the nights will be cold. Fig trees whether in pots or planted out will require great care in watering, keeping them well supplied, for if they receive a check now it is probable the fruit will fall. The points of strong-growing shoots should be removed and weakly ones rubbed off, keeping them fairly thin so as to allow air and light to have access to every part. Cherries are now ripe, and syringing must cease or the fruit will be spoiled. If possible the trees should be moved to a separate structure where the atmosphere can be kept dry and cool, in order that the fruit may remain in good condition as long as possible, protecting it from birds with netting; or the trees may be placed in some part of the house by themselves, so that syringing them may be avoided. Where Vines are trained under the apex of the roof or over the pathway the shoots should be stopped one or two joints beyond the bunch, and trained-in to the wires so that they do not shade the trees too much; the laterals must be kept to one joint by stopping as required.

#### PLANT HOUSES.

*Stephanotis* grown in pots and trained on trellises may, if the plants are not already large enough, be encouraged to grow for some time; but if already as large as required, they may at once be so treated so as to harden their growth without inducing them to extend any more, placing them where there is moderate heat with a dry atmosphere, and more air than where they have been grown, only giving water to prevent the leaves from becoming flaccid.

*Rondeletia speciosa major*.—This is very desirable for late summer and autumn flowering, blooming freely and lasting long in beauty. It succeeds in a cool stove, and grows well in good fibrous loam with about a sixth of sand. Plants started early are now showing flowers, and must be allowed abundance of water. Their bright red trusses are good for cutting and last some time. If the flower heads are cut off when the flowers have faded the plants will commence growing again and flower a second time.

*Pancretiums* are fine for cutting, the individual flowers combining purity of colour, elegance of form, and fragrance. They are of easy growth, thriving best in good loam with a little sand. When in active growth afford water freely, but when at rest give only sufficient to keep the foliage fresh, for if they are then over-watered the soil becomes sour, and the roots perish as fast as they are formed. They also require a light position.

*Clerodendrons*.—Of these *C. fragrans*, *C. fallax*, and *C. Kämpferi* have bright distinct flowers and are easily grown, yet the plants are seldom seen. They flower twice in the year if well managed. Plants started early will now have flowered, and should be shortened back to a couple of joints below the flower heads and placed in heat. If well supplied with liquid manure they will soon produce a second lot

of flowers, and as they open inure the plants to a lower temperature, transferring them to the conservatory, where they will be found valuable in the autumn. *Æschynanthuses* grown in baskets must now be well supplied with water, or they will not flower freely. *Amaryllis* should have liquid manure and be kept free from red spider. The plants must also have light well-ventilated positions, or the growth will not attain the development essential for flowering strongly.

*Greenhouse*.—Hardwooded plants that were potted early in spring have now taken to the soil and will be much benefited by being at once transferred to larger pots, especially young plants of *Acacias*, *Adenandras*, *Boronias*, *Eriostemons*, *Darwinias*, *Pimeleas*, *Polygalas*, *Leschenaultias*, and *Statice profusa*. The size of the pot must in all cases be determined by the condition of the roots. In no case, however, let the pot be larger than is likely to be fully occupied with roots before winter. If bright dry weather follow the potting shade for about three weeks from sun, and maintain a moist atmosphere, not allowing more air than is necessary to prevent the temperature rising too high. This potting must not be deferred longer than the ensuing fortnight, as it is important they become well established before autumn. *Salvia splendens*, *S. gesneræflora*, *S. Heeri*, and other winter-flowering Sages may be finally potted and placed outdoors where they have shelter from wind, at the same time full exposure to the sun. If the pots are plunged in ashes it will save watering and assist the plants to retain the lower leaves. *Heliotropes* for autumn and winter flowering may be treated similarly, removing all flowers as they show until September, and supply liquid manure. *Veronica salicifolia* and *V. Andersoni* are useful autumn-flowering plants, and to have them dwarf and bushy the pots must be plunged in coal ashes in a sunny situation, supplying water freely, and when the pots are filled with roots liquid manure will be beneficial.

Encourage winter-flowering plants of *Cytisuses*, *Genistas*, *Acacias*, *Correas*, *Bouvardias*, *Linums*, *Monochætums*, and *Daphnes* to promote a free sturdy growth and enable them to flower freely. Any needing repotting must be attended to at once, so that they may have the pots filled with roots before they are placed outdoors to ripen the growth. *Epacris* growing vigorously should have a light position, closing the house somewhat early in the afternoon, and syringe the plants.

*Azaleas* that flowered early and which were potted a few weeks ago must have the growth encouraged, and shading may now be dispensed with, or only some light moveable material employed in the brightest weather. Any plants that appear weak can have clear liquid manure every alternate time water is required. Later-flowered plants should have the seed pods removed, and be encouraged to make all the growth possible. Shade will be necessary at starting, but afford all the light possible without direct exposure to the sun.

## THE BEE-KEEPER.

### THE AUTHORSHIP OF "MODERN BEE-KEEPING."

In the "British Bee Journal" for June an editorial note calls attention to and endeavours to deny a statement made in this Journal in a reply to a correspondent that I am the author of "Modern Bee-keeping." As a duty I owe to my fellow readers I append my reply to my censor, adding that as a rule I disregard all attacks in the before-mentioned Journal, seeing that their aim and object must be well understood by all discerning bee-keepers, while I regard a conscientious and consistent course as a sufficient and abiding defence.

In the June number of the "British Bee Journal" exception is taken to a statement made in the *Journal of Horticulture*, in which I am referred to as having written gratuitously "Modern Bee-keeping." The character of the editorial is irritating enough, but I would prefer to reply to it in the strength of gentleness.

It is only needful now for me to say that not only did I gratuitously write the whole of the second edition of "Modern Bee-keeping," and the whole of the first except a very few lines of Mr. Hunter's, retained by me in order that his name might not disappear from the preface, but that in addition I designed and

drew upon the blocks nearly all the euts, and thus saved the Committee several pounds, while I even paid for the wood out of my own pocket. The preface is nearly all Mr. Peel's, who kindly wrote it at my request, and not at the request of the Committee.

As a bee book "Modern Bee-keeping" is wholly mine, and I am glad that the profit derived from its sale has tended much to improve the financial position of the Association. There is honour in service; and if the fact that some of this honour is falling on me has awakened jealousy in the minds of any I can give such my pity, and hope that if too much selfishness has hindered their usefulness the hindrance may be taken away.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

#### INCREASING STOCKS.

I HAVE received a letter from a correspondent on this subject, and as the questions contain matter for a general lesson on increasing stocks I shall venture to quote part of the letter touching the difficulty referred to. "I set aside a straw skep to breed from exclusively, having other hives devoted to honey-gathering. First I took a swarm of fliers (the bees flying about) and gave them a Ligurian queen. Next I took a large swarm with old queen from the straw skep. Lastly I took another swarm with young queen. For a week I watched if the young queen would commence laying, but at the end of a whole week she had not laid, so I thought she had not been fertilised before swarming. A double difficulty cropped up here, for I came to the conclusion that as the young queen had not been fertilised before leaving the old hive, which had no other queen in it for over fourteen days, that there was neither brood nor eggs in the old hive from which to rear a young queen. So I have put the young queen back into the old straw hive till she is fertilised and goes on with her laying; and into the new-made hive (presumably the second swarm hive) I have put the Ligurian queen, leaving her family to make a queen for themselves."

If our correspondent had stated when these movements were made, or how soon the one followed the other, it would have been easy to have told him what was right and what was wrong in them. His first move was to catch or guide the bees flying about into a hive having a Ligurian queen. This I consider was a risky and unwise proceeding. He knows whether it answered or otherwise. After this he took a large swarm with the old queen. This was right, and quite in harmony with good practice and natural laws. Lastly he took another swarm with young queen, not knowing whether the old hive had a queen or egg left in it. Our correspondent now sees his difficulty, and wants to know how the young queen remained so long unfertilised in the old hive, and for a whole week in the new hive. Perhaps she was fertilised, perhaps she was not. Fertilisation may take place three days after birth, and it may not take place for twelve or fifteen days after. Only one queen have I known fertilised so late as the fifteenth day of her age. Queens are not fertilised till swarming is completed, and sometimes piping continues for six days before second swarms are cast off. After swarming has ended weather may prevent queens leaving their hives in search of mates, and even in fine weather they may be unsuccessful for some days in their outdoor trips. When successful excursions have been made some days pass before queens commence laying. This explanation will show that no one can exactly tell how soon the Ligurian hive will have a queen hatched, fertilised, and laying. If an average swarm had first been taken with the old queen from the straw hive, and then given it the Ligurian queen, it would have been better, for from the straw hive (with Ligurian queen) two or three more swarms might have been had, and from the first swarm a virgin swarm. Thus moving on safe and natural lines the stock would have been multiplied into five or six good hives. In all such proceeding it is well to assist Nature, not wise to fight against it.—A. PETTIGREW.

#### SHALL WE CULTIVATE MELLIFEROUS PLANTS FOR OUR BEES?

THAT the place occupied in Nature by bees in general, and the honey bee in particular, is, as a rule, not understood even by the bee-keeper himself, is certain; and he in consequence is often led into expenditure which he would not otherwise have incurred, while he is not unfrequently met by disappointment which a little greater knowledge would have prevented. Let me in order to make this clear explain that the business of the bee as a honey and pollen gatherer, although most interesting to us as bee-keepers, because upon this our profit rests, is after all but the least part of the work which the insect accomplishes in the great and wondrous scheme of Nature. The bloom secretes honey, but not for itself;

it is a gift to the honey-gatherer—nay, rather a payment, for the bee in its visit to secure food for itself and young unconsciously performs an act which completes the object of the flower's existence, and receives the honey as a compensation for its service. This subject is so full of marvels and is so various in its details, that anything beyond an illustration or two I cannot at the present attempt. There always seems so much to write about that off questions like these get pushed on one side, but perhaps the winter may supply further opportunity. Speaking broadly then, honey-bearing flowers have anthers which shed pollen, while at a certain period a central organ or organs of the bloom (stigma or stigmata) open and wait for pollen being placed upon their surfaces. When this occurs a pollen tube, as it is termed, grows down from the pollen granule to the ovary and enters the ovule, which henceforth passes into a new phase of its existence as a fertilised developing seed. Without this placing of the pollen granule upon the stigma the bloom remains expanded for an unusual time, but at length fades, leaving no seed behind. The placing of the pollen granule upon the stigma can hardly be accomplished without the intervention of insects, for almost all blooms present some curious correlation of parts which makes it difficult, or even impossible, for its seed to be fertilised by pollen it has itself produced. Cross-fertilisation and not in-breeding is the law for a reason amazing by its beauty. This crossing is secured by means which are legion, but amongst which two are the most common—viz., the anthers ripen first, and not till all their pollen is gone does the stigma become receptive (protandrous), or the stigma is first produced, the anthers not ripening till after an opportunity for fertilisation by other pollen has been given (protogynous).

It is a general rule that honey continues to be secreted till fertilisation takes place, when a diversion of nutrition occurs, and with the ceasing of the honey the petals, Nature's coloured flags hung out to attract the insect visitant, drop. The netting of the greenhouse or conservatory against insects is of course right, because here bloom and not seed is the object desired.

But all this has a very practical application, for bee-keepers are prone to believe that their success depends upon the immediate surroundings of their hives. This mistake is seen in greatest intensity in a question I have been scores of times asked—"Do you think bees would succeed with us, we have a number of flowers in our garden?" To this it might be replied, Bees do not depend upon garden flowers, but if they did the fact of the flowers being in your garden would render them nearly useless. Is it not clear that the work the bee has to perform can only be accomplished by its scattering widely; and if its instinct led it to alight upon the very first bloom before it as it issued to forage that bloom would, in ninety-nine cases out of every hundred, have been already rifled, and so possess nothing to offer, while the honey further a-field would be left untouched and there seed would be unfertilised. I have this year grown two long rows of *Limnanthes Douglasii*, an excellent honey-bearing annual, very free-blooming, and decidedly protandrous, so that bees are required for its seeding. I have twenty-three stocks of Cyprian or Ligurian bees standing at an average distance of 60 or 70 feet from these plants, while I do not know that any black bees could be found under one-third of a mile from my house. The *Limnanthes* has been alive with insects, the hive bee exceeding all others in number; but I examined these plants several times daily for eight days in succession, and saw during the whole time but one Ligurian bee upon them, all the others being blacks.

That bees will in times of scarcity visit at the very door of home *Sedum fabaria*, or even such poor honey-yielders as *Geraniums*, I know, but at the same time would denounce as a mere delusion (what a scientific view of the case must dispel) that the planting in small gardens of the finest melliferous flowers will ever at all materially improve the position of our stocks.

Let us not discourage this honey-production, however, for—my *Limnanthes* to wit—if we do not thus much help ourselves we do a little towards helping others. The scattering of Clover and Borage seeds, and such like, in waste places on railway banks and disregarded corners, or in our grounds if extensive, is very useful, because here we conform to a natural instinct which we neglect if our blooms are made to nod their heads in the very face of the bees as they start from the alighting board. I have been told not a few times by disappointed purchasers of seed packets potentially containing whole supers of honey that the plants represented to be so suited to bees were quite unvisited. I hope I have now made the reason apparent. This year, in watching my Cherry trees about 70 yards from my hives, I found but few yellow-banded bees amongst them in comparison with the number seen on those of a neighbour at four or five times the distance.

It is thus by wide diffusion that the multitudes of bloom get in the main their needed attention, and that their honey is not provided in vain.—FRANK R. CHESHIRE.

(To be continued.)



\* \* All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

**Ferneries (Sussex).**—There is a description of Mr. Bewley's garden at Rockville on page 499, vol. ii., of this Journal; and descriptions of the gardens at Manley Hall in vols. xv. and xvi.

**Pear Leaves Blistered (East Berwickshire).**—Your trees appear to be infested with the Pear tree blister moth, the particulars of which and remedy appear on page 475 of our issue of the 9th inst. Possibly also the roots have entered a wet subsoil. If this is so, draining the land and replanting the trees in good soil are necessary, afterwards mulching over the roots with manure; the work to be done in November.

**Pelargonium Leaf Spotted (Wrenshall).**—The injury has not been caused by an insect, but is a disease that affects plants the root-action of which has been defective at some time; possibly the soil has been too wet and the atmosphere of the house too close. We should remove the affected parts, and if one plant only is injured plant it in the open ground, and it may outgrow the disease.

**Echeverias (Idem).**—There are many species suitable for bedding, but it is impossible to say whether they are more compact than yours, the name of which you do not mention. Careful management is necessary for raising Coleuses from seed, and even many gardeners fail in securing plants by that method. They are more generally increased by offsets and inserting the leaves in sand, the pots being placed on the stage of a greenhouse, and much care exercised in watering. This, however, is a slow process, and only good cultivators are successful with this mode of increase. A temperature of 55° is requisite for wintering Coleuses, but 60° is better, while some of the hardier forms may be preserved if the temperature falls occasionally to 50°, the plants being kept rather dry.

**Fumigating Melons (D.D.).**—You have no doubt injured the plants. Two or three light fumigations on successive nights are always safer and more effective than one powerful dose of tobacco smoke. If there are insects still on the plants, syringe them and dust them while wet with tobacco powder or snuff. By keeping them quite free from insects and maintaining a genial temperature the plants will probably recover.

**Onion Attacked by the Maggot (E. B. M.).**—We fear there is no remedy for the plants that are so seriously attacked, as the Onion fly deposits her eggs within the leaf sheaths of the plants, and the maggots form in the centre of the bulbs. Various preventive measures are recommended that are more or less effectual, and which will be referred to, also the other questions, in a future issue.

**Grapes Ripening (A Reader).**—If your Vines are healthy and growing freely you need not be alarmed about the wood ripening; we like to see it ripen with the Grapes if the Vines are strong.

**Insects on Vines (A.C.).**—There are no insects on the Vines except red spiders, and these we could wash off with the syringe. Fumigation is of no use, but you might apply sulphur, paint the hot-water pipes, and heat them until the sulphur fumes are perceptible; or sponge the leaves with a solution of soft soap or nicotine soap.

**Pansies (L. J. K.).**—All the flowers are Show varieties except 3 and 5, which are Fancies; the former of these is worthless and not deserving a distinguishing name, the latter too withered to judge as to its merits.

**Grapes Shankling (L. M.).**—From the description given it appears that you have treated the Vines reasonably, and the quantity of piping named would be quite sufficient. Shankling is generally caused by overcropping or defective root-action, the latter arising from stagnant soil causing the roots to decay, or a very dry border causing them to shrivel. You do not say whether the border is in a good moist condition, nor yet the extent of the crop allowed. We suspect the defect is traceable to one of these matters.

**Parcels Insecurely Packed.**—We frequently receive specimens sent in such fragile boxes that they are quite crushed in transit through the post. We also occasionally receive plants and sprays without numbers and without any letters in reference to the specimens. Now and then we receive parcels from which the contents have escaped. This week we received a small, broken, and empty paper box bearing the Manchester postmark. A direction label has also come to hand which had been stamped at Liverpool, the parcel to which it was attached having presumably been lost in transit. Correspondents who do not find any reference to what they have sent may well bear such facts as these in mind.

**Lilium Monadelphum v. Szovitsianum (W. H. H.).**—The state of the Lily bloom was not such as to enable a very correct judgment to be formed.

Enough, however, was apparent to say that it is a variety of Monadelphum, if not Monadelphum itself, the latter being probably the case. A note from Mr. James McIntosh, a large and successful cultivator of Liliums, refers to Monadelphum, as follows:—"The Lily was first introduced, I believe, as 'Monadelphum Szovitsianum,' it afterwards became known as 'Colchicum,' and now is frequently called 'Colchicum Szovitsianum.' I transcribe an extract from Mr. H. J. Elwes' Monograph of the genus Lilium, which is instructive—'Lilium Monadelphum (the Caucasian Lily), abundant in many parts of the Caucasus, at an elevation of 4000 to 6000 feet. Likes a strong soil in England. Scent disagreeable to some, pleasant to others. One of the earliest of flowers. Ripens seed freely in most seasons. Seed germinates quickly, but the seedlings grow slowly, and Mr. Ellacombe reports do not flower till the tenth year after sowing. Introduced by Messrs. Loddiges early in the century. There are several varieties which are fairly distinct, but run into one another so closely that I think better to follow the high authority of Mr. Baker in considering them as varieties only. I would here point out, though I am not at all confident, that these two forms, Monadelphum and Szovitsianum, can in all cases be well separated, yet as a rule they may be distinguished by several characters, among which the colour of the pollen, which is red brown in Szovitsianum and lemon yellow in Monadelphum, is the most conspicuous. Monadelphum is also from a fortnight to three weeks earlier in flower, and when first showing above ground usually has its flower buds exposed, whereas in Szovitsianum they are concealed by the leaves until the plant is just ready to bloom.' You will thus be able to determine the nomenclature of your plant, but from what we could see of the colour of the pollen we conclude the name is L. Monadelphum.

**Heating Pit (H. Taylor).**—In order to heat the pit satisfactorily it will be necessary to have a flow and return pipe for it. We should have a branch pipe put in at D, and bring the pipe above the bench, this being of course the flow pipe, and then take it beneath the bench so as to join the return pipe from the greenhouse at D. Instead of employing 4-inch pipes as in the greenhouse, 3-inch would give you sufficient heat in the pit, indeed more than sufficient to exclude frost.

**Erecting Greenhouse (B.).**—Your sketch is totally insufficient. No one can inform you as to the proposed sufficiency or otherwise of piping in houses unless not only the form and aspect but the length, width, and height of the structures are named. Besides, you show 240 feet of 4-inch pipes in the new house, and ask us in your letter if 2-inch pipes will be sufficient. If you send an amended plan and make your case clear to us we will readily advise you on the subject; with the data you have afforded it is quite impossible for us to answer your letter usefully.

**"Pelargonium-flowered Pansies" (L. J. K.).**—We do not know a section of Pansies distinguished by the above term by any accepted botanical or horticultural authority. It is no doubt a fancy name applied by some cultivator of Pansies, the blooms of which did not appear to him to properly belong to either the Show or Fancy sections. With the view, however, of aiding you to obtain what you require we make your desire known by quoting from your letter—"I wish to obtain the name of the foreign grower of Pelargonium-flowered Pansies, as I am desirous of obtaining plants of named varieties. The great English growers of Pansies say that they have none of that sort; but as I have seen flowers I know that some nurserymen abroad must grow them, and as Pansies travel well by post plants could easily be sent if I knew to whom to apply." If those who have any "Pelargonium-flowered Pansies" will send us blooms of them the information sought shall be conveyed to our correspondent.

**Dagmar Peach (G. S.).**—The fruit you have sent was much crushed, but judging by the glands on the leaves and the peculiar gelatinous flesh we think it of the above variety, which is described as follows in the "Fruit Manual":—"Fruit round, and marked with a shallow suture, which is deepest at the apex. Skin very tender, more than usually downy, of a pale straw colour, almost entirely covered with minute crimson dots, so dense that they nearly form a solid mass of colour; but here and there small patches of the yellow ground colour show through and give the appearance as if the fruit were mottled with yellow. Flesh white, with a gelatinous appearance; it is so tender as to melt entirely away in the mouth, and the flavour is very rich and vinous. Flowers small. Leaves with generally kidney-shaped glands, but occasionally they are round on the small leaves. This is one of the varieties which exhibit various formed glands on the same plant. This ripens about the 10th of August. It was raised by Mr. Rivers, and is the second generation from Early Albert, which he also raised, and was named in honour of Princess Dagmar of Denmark, sister of the Princess of Wales."

**Marechal Niel Rose (L. G. S.).**—If you permit the growths to extend under the influence of light and air, thinning out any of the shoots to prevent overcrowding, but not shortening the others, they will be firm and mature in the autumn, and will produce flowers freely in the spring. The pruning in winter must be limited to the removal of the immature tips, the growths remaining practically their entire length.

**Morello Cherries Falling (F. J., Cork).**—There are several causes that result in a portion of the fruit dropping—imperfect fertilisation, spring frosts occurring at a critical time, an excess of fruit beyond the strength of the tree, and immature wood, the consequence of overcrowding and the absence of sun and air in the autumn. You manage your tree differently from the method ordinarily adopted and recommended. If you had read attentively the instructions that have been given from time to time in "Work for the Week" you would have perceived that after thinning out, by disbudding, superfluous growths the remainder should be secured to the wall their entire length between the main branches, precisely the same as Peach trees are managed, as both Peaches and Morello Cherries bear chiefly on the wood of the current year's growth, as also do Black Currants. Yet we have seen good crops of Morello Cherries on the spur system of management; the other, however, is the more certain, and we advise you to try it. The young growths when secured to the wall must be sufficiently thin to allow of the full development of the foliage, as overcrowding is a common source of failure.

**Daisies and Plantains on Lawns (P. K.).**—The presence of Daisies in great numbers is usually indicative of poorness of soil, but it by no means follows if manurial dressings are applied that the weeds disappear. The best of all remedies is to dig up the lawn, carefully forking out all the weeds, and cleaning the land, then adding if possible a surface dressing of good soil, free from the roots and seeds of weeds, and sow the whole thickly with clean lawn seeds obtained from a nurseryman or seed merchant, and not swept up from the hay-loft. By this practice a fresh verdant lawn may be had in a few weeks. One drop of sulphuric acid placed quite in the heart of each plantain will destroy those weeds, and we have seen Daisies eradicated by Watson's lawn sand, and occasionally we have seen it fail; in the latter case possibly the instructions for use had been deviated from in some apparently simple yet important respect. These should be strictly carried out in every particular.



**Names of Plants** (*L. S., Surrey*).—1, *Hedychium Gardnerianum*; 2, *Asplenium cicutarium*; 3, *Doodia media*; 4, *Adiantum tenerum*; 5, *Pteris tremula*; 6, *Davallia dissecta*. (*Iota*).—*Periploca græca*. (*J. T. S.*).—It is impossible for anyone to name with accuracy sprays of plants simply enclosed in letters, which are not only crushed into a shapeless mass, but quite shrivelled by remaining in the post office throughout Sunday. We can only suggest that the blue flower is *Centaurea montana*; the other is totally unrecognisable. (*Reader*).—1, *Valeriana officinalis* (common Valerian); 2, *Atriplex hortensis* (garden Orache); 3, *Oxalis stricta* (Upright Wood Sorrel); 4, *Ægopodium Podagraria* (Herb Gerard, or Gout Weed). (*Rosa*).—The Orchid was insufficient; send another specimen. The other plant is *Asarum canadense*.

**Removing Sections** (*Buzz*).—Sections are almost always found most nearly complete towards the centre of the tray or rack. If the honey yield is good and likely to continue we simply draw out the full boxes and replace empty ones, but if we know we are drawing towards the close of the harvest we contract the rack, removing the finished boxes and pushing the remainder together. We think it a wise plan to watch for the close of the honey yield and then take our nearly-completed boxes from our weaker hives and place them over one or more of our strongest, feeding with extracted honey if necessary in order to get all into marketable condition. This plan may exclude the sections from exhibition, however, the matter turning upon the wording of the schedule. Feeding with extracted honey is costly, and will only pay for mere finishing. The honey so fed must be diluted with quite an equal quantity of water, as with thick honey the bees are unable to work freely. The sealing made from fed honey is always exceedingly white and pure, as it is free from propolis, the presence of which often sadly stains and freckles the late autumn gathering.

#### COVENT GARDEN MARKET.—JUNE 29.

TRADE somewhat improved during the week, and with good supplies prices easier. Large quantities of Strawberries are now reaching us from the home counties as well as the south, and prices this week will be at their lowest.

##### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Melons .....	each	2 6 to 4 0
Apricots.....	box	1 6 3 0	Nectarines.....	dozen	6 0 10 0
Cherries.....	½ lb.	0 6 1 0	Oranges .....	½ 100	4 0 8 0
Chestnuts.....	bushel	0 0 0 0	Peaches .....	dozen	6 0 20 0
Figs.....	dozen	6 0 9 6	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	0 0 0 0	Pears, dessert ..	dozen	0 0 0 0
Cobs.....	½ lb.	0 0 0 0	Pine Apples ....	½ lb.	3 0 4 0
Gooseberries ..	½ sieve	2 6 3 6	Strawberries ...	per lb.	0 4 1 0
Grapes .....	½ lb.	3 0 8 0	Walnuts .....	bushel	0 0 0 0
Lemons.....	½ case	12 0 18 0	ditto .....	½ 100	0 0 0 0

##### VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms .....	punnet	1 0 to 1 6
Asparagus.....	bundle	2 0 5 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling .....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas .....	quart	1 0 1 6
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capiscums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 6
Coleworts..... doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 8	Scorzoneria .....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale .....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



#### POULTRY AND PIGEON CHRONICLE.

##### THE DISEASES OF SHEEP AND LAMBS.

THIS subject is one of the most important to be considered by the manager of the home farm. Disease and difficulties attending the shepherding of the flocks are of daily—nay, frequently of hourly—occurrence; and not only are there diseases which may be brought out by the action of the atmosphere and the food consumed by the animals, but there are disorders which termed hereditary, and some are incidental to ewes either during pregnancy or at the time of parturition. It should, however, be remembered that although many of the losses of both ewes and lambs at the time of yearning cannot be called diseases, yet they have an effect often attended with more serious consequences than any epidemic. In consequence it will be necessary to point out what diseases and disasters to which sheep and lambs are liable are due to the general management and treatment by the home farmer and his shepherd. It will be necessary, too, to understand and define diseases which cannot be controlled or prevented,

and those which may be prevented by anticipatory management. It is of the utmost importance to consider how many of the causes of disease are within our control, and those which are purely the result of atmospheric influence; on the other hand, how many of the diseases attending our flocks are really due to neglect and inconsiderate or inexperienced management. The home farmer will see most clearly the direction his course must take, and it will be our endeavour in writing upon this subject to aid him in understanding and surmounting the difficulties he will encounter. It must be admitted that the home farmer having the management of sheep stock has daily opportunities of witnessing the commencement, progress, and termination of disease occurring on the farm, and by studying the causes said to produce them he will be enabled in a short time to treat them successfully.

The first portion of the subject is the diseases which have proved so fatal to flocks in various counties and districts of England during the several past wet and cold seasons. We find that the mortality arising from causes such as the rot applies chiefly to the grazing districts where the animals live principally upon pasture lands; but as an article was given in this Journal of July 31st, 1879, upon the subject of the rot or coathe it is unnecessary to enlarge upon the subject on this occasion. We may, however, take this opportunity of stating that through the influence of the late unfavourable seasons for sheep they have suffered largely from another disease affecting the liver without the presence of any flukes, although the symptoms are frequently mistaken for the true rot. It consists from some undefined cause of changes in the constituents of the bile, producing white streaks and spots and general paleness of the liver, and ultimately so far destroys the ordinary secreting functions of the liver as to produce an impure quality of blood and its necessary consequences, such as dropsy and gradual wasting of the tissues of the body. These diseases, being always aggravated by an excess of moisture, have been materially augmented for several years past by the extraordinary amount of rain that has fallen. On a post-mortem examination of several animals which have died under wasting symptoms we have found the livers greatly enlarged, and which would break readily between the fingers. This is called "sand rot," but it is often termed "dry rot." It is generally believed to be caused not only by an excess of moisture on the herbage and the soil, but also by the deposit of sand on the grass by floods. We have often seen this silt on the grass on very poor clay soils after the subsidence of water, the result of excessive rains, which does not quickly disappear by absorption in these strong soils; but although this disease is incurable it is preventible. The way in which this silted and tainted herbage acts upon the system is not only an interesting but an important question, quite worthy of study by our professors of veterinary pathology.

On taking up another point we must observe it is notorious that in some districts, especially in the southern and eastern counties, a great mortality of lambs has occurred for some years past, and that these losses are now continuing to increase as the yearning period comes round, and these losses have fallen upon the lambs about and soon after lambing. From the early age at which the lambs die there is no time for disease to be engendered in their systems; we must therefore carry our inquiry as to causes back, and see if we cannot discover some predisposing causes connected with the system of breeding and management carried out by our flock masters in the above-named districts. At any rate, we will give a few hints for consideration on this part of the subject. First with regard to breeding. We fear very much that the hardihood and constitution of the male animals in many of our breeds of sheep have suffered in no slight degree from the practice now so general of forcing them to an unnatural size and fatness at an early age, with the view of making them appear larger and better on the day of sale than they would be if reared in a

more simple and natural manner. We can, however, hardly expect breeders to discontinue the practice while they find the public prefer buying the animals in such an artificial state. Secondly, we think that if the males have been too artificially fed by the flock masters that the females, on the other hand, have been injured to some extent by the adoption of the opposite system. No doubt most people have been stimulated by the high prices of mutton for the last few years to turn out as great a number of animals as they possibly could, and have thus been tempted to keep a larger number than they could maintain in a healthy condition. Now, anyone can readily understand that disease may be, and often is, engendered in the offspring when the blood of one parent is in an unhealthy and plethoric state from overfeeding, and that of the other in a poor and unhealthy state from underfeeding. We would suggest that they who have erred from either or both of these reasons should be very careful to have male animals not artificially fed and reared, taking care to select the breed best adapted for our purpose, while we would give the females every indulgence consistent with good health and condition, and try to increase the quantity of mutton by a greater weight per carcass.

The losses of lambs to which we have just referred has often been attributed to the animals having been fed upon roots, the produce of applications of concentrated manures to almost all the food crops on which the flock masters of certain districts keep their sheep, and may have had some effect on the organisation of the plants, and that has again operated injuriously on the sheep. We, however, with the greatest confidence oppose the theory that any losses of sheep or lambs were owing in any degree to the use and application of artificial manures.

(To be continued.)

#### WORK ON THE HOME FARM.

*Horse Labour.*—Horses, and oxen too, are still fully employed on the land, for although the working of oxen is not carried out to so great an extent in some districts, yet in various counties they are nearly as much in use as formerly, except in those instances where steam power is used. We cannot recommend the home farmer to exclude oxen from the tillage labour of the farm, for when compared with horses there are various practical points in their favour, more particularly when the best kind of animals either of Sussex, Hereford, or Devon breeds can be obtained. We estimate their comparative value for working purposes as we have placed them, taking the Sussex first as being the stronger, and the Devons last as being the smaller and weaker animals of the three. The value of the ox for labour should be estimated like that of the horse, according to its size, weight, and activity. We have not space now to enumerate the comparative advantages of the two animals for working purposes, especially as we have previously referred to this matter on the working power of animals in these pages. The preparation of land after green crops for sowing Turnips will still be going on, and we prefer sowing at once, ploughing, drilling the seed and manure every day as fast as the land is ploughed. This plan is certainly the safest in our changeable climate, for by sowing as fast as the land is ploughed we are sure of obtaining a fine surface upon all except the strongest soils, and a sufficiency of moisture. There is sometimes the fact to be considered how best to dispose of the Couch, if there should be any found after the green crops are removed. If it is present the land should be first scarified, dragged, harrowed, &c., and the Couch carted away, unless the weather is very dry. It may then be burned to save time. After this by ploughing a moderate depth the land may be again worked fine, and the grass picked off after drilling the seed; for that is a matter which must not be delayed, otherwise the seed will not vegetate if the weather is very dry. The odd horse, ox, or mule kept for various work on the farm will now be fully employed, and in some cases one or two more horses will be wanted for carting green fodder for the cattle. In addition to this there will be horse-hoeing Mangolds, Swedes, early Turnips, Cabbages, and other root crops. This hoeing should always be done without reference to the weeds being very strong, because stirring the soil will always be beneficial in dry weather. At the same time we must not wait for the weeds to become strong, for when young they are more easily destroyed. Irrespective of the weeds the second hoeing is a necessity, and in the case of the Mangold plants being weakly or sickly  $1\frac{1}{2}$  cwt. of nitrate of soda per acre should be strewn along between the lines before the horse-hoeing is done. Horse labour will still be required with the mowing machine. Strong horses should be used and changed at mid-day, so that no horse in this work may be worked longer than about four or five hours. The mowing will require to be continued if the weather is fine, the crops generally being little if any more than half a crop either of field grass or upland and parkland. In dry weather we need not fear having too much work on hand, because machinery gives the opportunity of getting over a lot of work in a little time. The hay, also, requires but little labour or attention, for in really hot dry seasons we have known pasture hay cut one day and carried to stack the next day without any tedding whatever; and this is the best plan with light short crops, because when taken up out of swathe there is then neither waste or loss of the small fine grasses.

*Hand Labour.*—Men are now employed in carting bays to the appointed place for making the hayricks, so that the stands may be made and ready at short notice for the commencement of rick-building. Unless in very small occupations, or in case the hay is near the farmstead, the stacks are best made in the field where the hay was produced, as so much work can be done in a short time in such a case—a matter of immense importance at the busy period. The home farmer should obtain a skilled thatcher for constant work on the farm, or teach and engage one of his best labourers to prepare for the work.

*Live Stock.*—Now the weather is favourable the stock, whether of cattle feeding for beef or dairy cows grazing for the milk supply, have been doing well, although the grass has not been very abundant. It has been the same with sheep; the weather during the period of folding off Clovers, Vetches, and Saintfoin has been favourable, and all land intended for roots after the green crops will work fine for drilling and seeding. The lambs which have been weaned, and are required for early sale, should have a full allowance of cracked beans or grey peas, unless as we find some farmers are now employing Mangold cut and mixed with cake or beans in the meal state; and where it can be done, and the Mangold has been reserved, this is the best means of feeding without waste. Breeding sows should now be accommodated in a littered yard, feeding on green crops or grazing in a grass paddock or orchard with pease or maize in the troughs given twice a day.

#### VARIETIES.

*RAPID GROWTH OF GRASS.*—It will be remembered that at the Paris Exhibition of 1878 some surprising results were produced with grass seeds, but even these have been surpassed at the Derby Show ground of the Royal Agricultural Society. We are informed that on the 20th June Messrs. Carter mowed for the first time the grass which was sown on the afternoon of the 2nd June, the ground thus presenting a perfect sward in the short period of seventeen days from the time of sowing—the quickest growth of grass that has been recorded.

— *IPSWICH APIARIAN SHOW.*—We have received the schedule of prizes for hives and honey offered by the Suffolk Bee-keepers' Association to be competed for at the second annual Show, to be held on the 19th to 24th of September, 1881, inclusive, at Ipswich, under influential patronage. Thirteen prizes are offered for hives, two for supers, twenty-one for honey, four for wax, two for bee flora, and there are also special classes for cottagers. A honey fair will be held in connection with the Exhibition.

— *ART AND SCIENCE OF AGRICULTURE.*—Professor W. H. Brewer has written as follows in the Journal of the American Agricultural Association, a work of two hundred pages, containing much interesting matter and valuable information:—Agriculture is both an art and a science. The art of agriculture is very old, almost as old as the human race; the science of agriculture is very young, almost as young as some of the men who hear me speak. Before the modern means of transportation were devised, and before commerce had so placed all civilised nations into one brotherhood, when regions separated from each other by even moderate distance did not and could not stand in direct agricultural competition, when agricultural methods were simpler, and society's wants were also simpler, then the art sufficed very well to feed and clothe the people as they then lived. But now, when distant regions stand in sharp competition with each other in the markets of agricultural products, the science must play a more important part. The art still varies with the locality, with the soil, climate, the traditions of the people, and the thousand and one local conditions which control the agriculture of any particular place. The art is local and changeable, but the principles of science are fixed and general. The art must be changed or modified with each new invention, with new facilities for transportation or production; but scientific principles, remaining fixed, may, however, be applied in new directions with the new need or new conditions, or it can be applied in new ways to remove old difficulties.

— *THE IMPORTANCE OF PURE SEED.*—From the same source we cite the following by Dr. Albert R. Ledoux:—From a lot of commercial red Clover seed, a carefully drawn sample of 2 ozs. (59 grams) in weight was taken. It contained seeds of red Clover, 94 per cent.; impurities, 6 per cent. Of the 94 per cent. of pure seed, 60 per cent., or three-fifths, were found to be incapable of germinating. The impurities consisted of sand, chaff, and seeds other than red Clover. A pound contained no less than 14,400 foreign seeds. Pursuing the investiga-

tion still further, these unwelcome intruders were found to be of forty-four distinct species, as follows: Thistle, Horse Sorrel, Sheep Sorrel, Milkweed, Dandelion, Knotweed, Bottle-grass, Knawzel, Bladder Campion, Corn Spurrey, Star-wort, Penny Cress, Rabbit Clover, Swedish Clover, Zigzag Clover, Hop Clover, White Clover, Valerian, Speedwell, Blue Violet, Marsh Violet, Pansy, Rib-grass, Plantain, Timothy, Poppy, Forget-me-not, Black Medick, Burdock, Darnell, Cranebill, Goose-grass, Spurge Blueweed, Wild Carrot, Ox-eye Daisy, Pigweed, Chickweed, Winter-cress, Sand-wort, Pimpernel, Dodder, and Alyssum. While we might tolerate an occasional Forget-me-not, Pansy, or Poppy, and might welcome the Timothy and white Clover, who would want to sow the Blueweed, Daisy, Burdock, Darnell, and Dodder? From the data I have given, we can easily calculate that the farmer who sowed this stuff upon his field distributed with it the germs of 680 Blueweeds, 21,400 Dodder, 5983 Daisies per acre, to say nothing of the other useless or hurtful seeds to the number of 215,843 on every acre. We can now realise his misfortune; but this is not all. A single plant of Blueweed has produced by actual count 14,735 seeds, of which 8255 sprouted. What a world of trouble all this means! No wonder English farmers have the proverb—

“One year’s seeding  
Is seven years’ weeding.”

— BRITISH GOAT SOCIETY.—At a meeting of the British Goat Society held last Thursday, it was reported that a sum of £64 had been allotted as prizes for goats, £49 for mules, and £44 for donkeys, in connection with a show of these animals to be held at the Alexandra Palace on July 9th and following days, under the patronage of the Duke of Wellington. Mr. Holmes Pegler (Hon. Sec.) stated that he had already received a number of applications for tickets for the kid dinner fixed for the first day of the Show. Allusion was also made to the forthcoming exhibition of the Agricultural Society at Hatfield, when premiums to the value of £19 10s. will be awarded to goats, a portion of this sum being contributed by the Society.

— AGRICULTURAL PROSPECTS.—The hay crop is certain to be both late and light. Green crops are nothing like so promising as they were last year. Turnips have been sown and resown repeatedly after destruction by the fly. Mangolds are much riddled by the grub, which attacks them in a later stage of growth. Potatoes are very promising. As to the Wheat crop opinions are very various. Upon the whole, we think the impression made by these reports is favourable. The crop is late and in some places it is thin, but generally we trust there is a prospect of a fair average yield. Of the spring Corn, the Barley is generally looking better than the Oats, which have suffered from the wireworm and are patchy in many places. — (*Agricultural Gazette.*)

## POULTRY AND PIGEONS

### FANCIERS v. FARMERS.

A GOOD deal of discussion has been going on of late as to the effect which the development of the taste for fancy poultry during the last thirty years or so has had upon the food supply of the country. Has the table fowl of the country been improved? Have the laying qualities of our poultry been developed? Such are the questions asked. The answers are various. The “praisers of the time that is past,” declare that the Dorking of to-day is a miserable impostor. It has nothing, in fact, to recommend it to any other notice than a passing and general condemnation. It has black feet, it has big bones, it has coarse flesh, in a word it has everything that is bad. The winner of many prizes is not a Dorking at all; it is a mere spurious imitation of the real old Dorking produced by some cross which has indelibly stamped upon the race a taint which cannot be got rid of.

Now as the Dorking is essentially the table fowl of the country, these statements if uncontradicted would go a long way to prove that, so far as table fowls are concerned, the fancier has done his worst. Contradiction is, however, forthcoming in abundance. The successful Dorking fanciers of to-day assert that as table fowls their birds are better than they ever were, and there are not wanting independent witnesses to corroborate this view.

We shall not attempt to say which side is in the right, but setting the evidence on the one hand against that on the other, suppose that they mutually cancel each other, and that the show Dorking of to-day is at least as good a table fowl as the Dorking of a quarter of a century back.

If this view be correct the controversy as to the merits or demerits of the show Dorking may be dismissed, for if the fancier of to-day can offer to the poultry farmer only as good a table Dorking as was obtainable thirty years ago, he can also offer to him other birds which are suitable as the foundations of a breed of fine table fowl. He can further supply materials for the production of a good laying family, and thus turn the balance largely in his favour.

In much that has been written on this subject, the fact that the fancier does not as a rule much regard practical points has been alleged against him as a fault. It might with almost equal justice be alleged that pictures or statuary are not edible, and that therefore painters and sculptors are to blame for not improving the food supply of the country.

The fancier as a fancier has nothing to do with the food supply, and the fact that he chooses to exercise his taste and skill upon subjects which are also capable of being treated from a practical and utilitarian standpoint cannot render him blameworthy. Let the blame, if such blame be deserved, be laid at the door of the farmer in whose province these matters really lie, and not at that of the fancier to whom they are of minor importance.

We must confess that we think there is ground for the complaint that poultry and eggs, as items in the national food supply, have been neglected. During the last few years there has been to some extent a tendency towards improvement; but looking to the facts that many millions of eggs are imported annually into this country from France and elsewhere, and that French table poultry are far superior on the average to those produced here, it must be admitted that there is still much room for improvement.

An intelligent appreciation by the farming classes, especially the small farmers, of the capacities for development in this direction which are at their command, and of the profit which may be derived from a judicious expenditure of their time and capital, is what is really wanting to remedy the existing evils.

The fancier, though not directly concerned in the matter, has by his pursuit of size and symmetry as exhibition points, by the introduction from the continent of breeds which had always been bred there chiefly for their table qualities, and by the distribution far and wide over the country of pure-bred birds with certain known characteristics, placed at the disposal of the farmer the means of producing a breed of poultry which shall rival the short-horn as a layer-on of meat and be also remarkable for egg-production.

Many of the useful qualities of a breed are doubtless sacrificed by the fancier in his efforts to attain perfection in standard points; but it must never be lost sight of that but for the fancier certain breeds which are most useful for the purpose of crossing in with common fowls would hardly have been produced at all, and that the laying qualities which are lost by breeding for points can generally be recovered by introducing a cross of perfectly strange blood into the family.

The best results, both as regards table and laying qualities, which we have heard of have been attained by taking the products of fanciers’ labours, undoing the harm and retaining the good which had been accomplished, and then, regardless of fancy points, developing the useful qualities by careful selection and judicious crosses. This is the method which the poultry farmer will find most advantageous, and it is a method which would not have been open to him but for the efforts of the poultry fancier. Let the farmer, then, gratefully acknowledge the benefits which the fancier has conferred upon him, and avail himself of efforts which, though not made on his behalf, have resulted in enabling him to take up a neglected branch of his business with advantages which but for the poultry fancier he would not have possessed.

### THE MUSK DUCK.

WE have often remarked on the paucity of the breeds of useful Ducks as compared with the great variety of fowls, and have hailed with pleasure any pure and profitable addition to our duckeries. We are tempted now to write a few lines upon no new breed, but upon one with which most of us have been acquainted from our childhood, but which we have been wont to regard solely as a quaint curiosity, and have consequently neglected—we mean the Musk Duck. Perhaps we have been used to call it the Muscovy, but this name has been given it in error. It is undoubtedly the Musk Duck, probably first imported from



Peru, and so called from the odour of musk which pervades its plumage, and is quite pleasant in the beautifully soft down with which it lines its nest.

In the old poultry books Musk Ducks are somewhat fully described, in the modern ones they are passed over very cursorily. Dixon, who devotes a chapter to the breed, hardly, as it seems to us, does it justice. He says of the Musk Duck, "It will never go near the water if it can help it, but will prefer the farmyard, the precincts of the kitchen, or even the piggery itself, to the cleanest stream that ever flowed; in fact, it hates water except some dirty puddle to drink and dabble in."

When thrown into a pond it gets out again as fast as it can." Such is by no means our experience. The Musk Duck will not, like the Mallard or the black East Indian Duck, be continually found upon the water, but ours swim frequently and keep their plumage, which is white, in spotless condition. Any Duck which has been reared, as many are, under a hen and far from water till it is mature will always hate water. The Musk Duck is not peculiar in this respect. Its first peculiarity is the great disproportion of size between the two sexes, the drake being nearly twice the size of the Duck. Both have much curious coral-coloured flesh about the head, and both make peculiar subdued noises unlike the "quack" of the ordinary Duck. They perch, too, on fences and on trees; our own look very pretty established for the night on a fence running through a pond to keep the cattle from deep water. The male bird is certainly one of the largest of the Duck tribe, and may with advantage be used to cross with the Aylesbury or Rouen Duck. The produce of such a union are very large, attain the earliest maturity, and are delicious to eat; but it should be remarked that the Musk drake is generally very faithful to a mate of his own species, and if it is desired to rear cross-bred Ducks no Musk Duck should be kept. We have heard that when old the drake often becomes ferocious, and besides flying at human beings bullies poultry and other Ducks. We have not found ours do so. We have this spring bred from a single pair in a large enclosure round a piece of water with two or three other kinds of Ducks upon it. The Musk birds have kept to themselves, and have never in any way molested any of the others old or young. The Ducks are fair layers and the best of mothers. They make a beautiful nest of their down, almost equal to eider down, and which has a delicate musk scent. They sit (this should be well remembered) thirty-six days, and sometimes more. The Duck should be cooped for three or four days, and may then be allowed to range about with her family, which she will do most quietly and contentedly. The young are the prettiest and quaintest of ducklings and very tameable; they soon show their perching propensities by sitting on the edge of their drinking vessels. For the first month they should be driven into a dry coop or house at night. About food they are not at all particular, and will eat whatever is prepared for chickens or other ducklings.

The plumage of Musk Ducks is found pure black, pure white, and more often black and white or mottled brown and white. The self-coloured birds are by far the handsomest; we prefer the white, which is the colour of our own, for it is the purest white possible, like that of the Fantail Pigeon, and has none of the tinge of yellow so common on white fowls and other white Ducks. The black, too, are handsome birds, and the gloss and sheen of green and purple upon them is very bright, equal to that of the black East Indian Duck. Black, we are told, is the colour of the wild breed in South America. Audubon asserts that they make their nests in a wild state in trees or stocks of trees. We have never known them to do so in a domestic state. The young ones should be killed at ten weeks old if reared for the table, when their flesh will be found both rich and tender. There is something fascinating in the extreme tameness and confidence of the breed; the Duck specially struts about most calmly surrounded by her family, and quite free from the stupid fussiness of Ducks in general. Where many eggs are required we do not recommend them; but where there is room for variety and some tameable pets are desired, then decidedly Musk Ducks should be added to the aquatic stock.—C.

#### THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at Charing Cross Hotel on Monday, the 27th of June, at 2 P.M. There were present Messrs. T. C. Burnell (in the chair), T. W. Anns, R. A. Boissier, A. Comyns, O. E. Cresswell, A. Darby, and L. C. C. R. Norris.

ELECTION OF MEMBERS.—The following new associate member was elected—L. W. W. Melhuish, 16, Erith Villas, Northend, Erith, Kent.

DISQUALIFICATION.—The complaint against Mr. C. Brown of Windermere, which had been several times previously under the considera-

tion of the Committee, was again brought forward. It was alleged by Mrs. Paxton, Oak Villas, Hamfrith Road, Stratford, that Mr. C. Brown early in December last sold and delivered to her a bird purporting to be the Buff Cochins cockerel, winner of cup at the Dairy Show, 1880; that he subsequently advertised another bird, also purporting to be the Dairy Show winner, for sale, and also advertised eggs for hatching from hens mated with that bird; and that Mr. Brown actually sent on approval to a friend of Mrs. Paxton the bird so advertised. Mrs. Paxton submitted letters written by Mr. Brown in support of her complaint. The Secretary had had considerable correspondence with Mr. Brown, without obtaining any explanation satisfactory to the Committee. It was resolved—

"That Mr. C. Brown of Lake Side New Hotel, Windermere, be disqualified for one year from the 27th June, 1881, from exhibiting at Shows held under Poultry Club rules."

OWNERS BIDDING AT SHOWS.—The Secretary submitted for consideration a draft of the case to be put before counsel as resolved at the last meeting, and such draft was approved by the Committee.

NON-PAYMENT OF SALE MONEY BY SHOW.—A complaint by Mr. A. E. Ward that the sum of £1 16s. due to him from a show held at Thornton on August 9th, 1879, being the proceeds of a sale (less commission) of a pen of Buff Cochins entered in the selling class at that show, had not been paid, was again before the Committee. The Secretary reported that he had written twice, on the second occasion by registered letter, to the Secretary of the Thornton Show asking for an explanation of the matter, but that he had received no answer to either communication. It was resolved—

"That Mr. A. E. Ward should be guaranteed his expenses, not exceeding £3, of recovering in the County Court the amount due to him for sale of birds at Thornton Show."

ACCOUNTS.—The accounts of the Club for 1880 were laid before the Committee, examined and approved, and it appeared that there was a balance to the credit of the Club as on December 31st, 1880, of £173 15s. 4d.

CLUB LIBRARY.—It was resolved that a Club library should be formed, and that Mr. Lewis Wright's collection of poultry books should be purchased to form the nucleus of such library.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane, London, W.C., June 28th, 1881.

#### OUR LETTER BOX.

**Hen Crop-bound (N. S. R.).**—Your hen is crop-bound. Pour some warm water down her throat, and gently but thoroughly knead the crop for some time. This will distend and soften the crop, and a table-spoonful of castor-oil will probably clear away the obstruction. Should this not succeed you must cut open the crop near the top, making an incision through the outer and inner skin about an inch in length. Through this opening the contents of the crop must be removed with a small spoon, the crop thoroughly washed out, and any obstruction which may have lodged in the outlet removed. The opening must then be sewn up, each skin being stitched separately and each stitch distinct. Horseshair is the best material to use for thread. We have sometimes avoided the necessity for this operation by softening the food in the crop with a considerable quantity of water, holding the bird by the legs with the head down and the back against our knees, and gently but firmly pressing the liquid food through the gullet. This must be done with care and rapidity, or the bird may be choked in the process, and the food to be removed must be kept in a liquid or semi-liquid form by pouring in water from time to time until all has been removed. Whichever plan be adopted the bird must be carefully fed on soft food in small quantities for some time afterwards. Do not allow her to eat much grass for some time.

**Chickens Lame (Idem).**—It is probable that the lameness has been caused by an injury, as you suggest. Is there any wirework in which they might get their feet caught?

#### METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1881. June.		Baromet- ter at 32 <sup>nd</sup> and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Inches.	deg.										
Snn.	19	29.820	60.0	54.3	S.W.	59.7	71.8	54.0	122.0	48.2	—
Mon.	20	29.780	66.3	58.7	S.W.	59.8	70.7	54.0	122.6	49.3	0.014
Tnes.	21	29.554	64.6	60.7	S.E.	60.4	73.4	58.1	124.7	53.2	—
Wed.	22	29.671	62.6	56.9	S.W.	60.9	70.6	56.3	125.7	52.7	—
Thurs.	23	30.053	64.5	57.1	N.W.	61.0	72.6	51.6	129.5	47.3	—
Friday	24	30.233	61.1	56.9	N.	61.3	76.3	49.6	117.3	43.6	—
Satur.	25	30.028	63.7	57.1	S.W.	60.8	72.4	48.6	109.9	43.4	0.240
Means.		29.877	63.3	57.4		60.6	72.5	53.2	121.7	48.2	0.254

#### REMARKS.

19th.—Fine breezy day.

20th.—Fine; overcast at intervals; slight rain in evening.

21st.—Dull and overcast; very gusty wind; much finer latter part of day.

22nd.—Dull with slight rain in early morning; bright and fine afterwards.

23rd.—Fine pleasant day; cool breeze.

24th.—Hazy in morning; fine warm day.

25th.—Cool and showery; fine evening.

Temperature very uniform and rather above the average. No rain of importance except on Saturday.—G. J. SYMONS.









